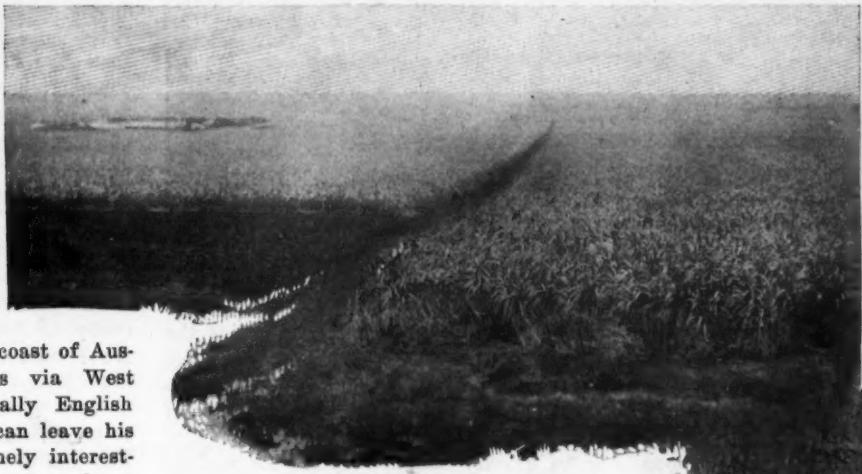
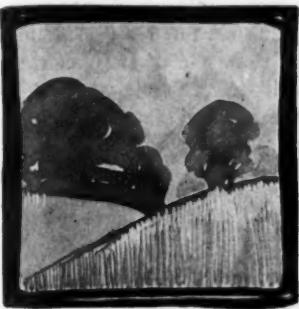


# MOTOR AGE

## FEATURES OF MOTOR TOURING IN AUSTRALIA



SUGAR CANE GROWING IN QUEENSLAND

A TOUR on the northwest coast of Australia to Ulverstone is via West Devonport, through a typically English grazing country. A tourist can leave his car here and take an extremely interesting trip to Burnie by train and on by a private railroad to Zeehan, passing through some magnificent scenery. Zeehan is a small town and the tourist will notice that everyone wears an umbrella. From Zeehan to Strahan and on to Mount Lyall is by rack railway up one of the most magnificent verdure-covered passes in the Antipodes. Mount Lyall, a town of from 6,000 to 8,000 population, is wholly supported by the copper mining industry.

After having returned to Launceston a trip can be taken to Hobart, right across the island, from where tours can be made to Huon river, New Norfolk and several delightful resorts. The roads in Tasmania are good and this island is very largely used by Australian motorists as a touring ground. It is better for the motorist to return by the way he came, i. e., through Launceston, than to put his car on a coastal boat at Hobart and thus return to Melbourne. The road from Melbourne to Adelaide passes through some immense stations, where one can see wheat fields as far as the eye can reach. It is interesting to note here that in a reliability trial some 3 years ago a woman drove a 6-horsepower Wolseley car over this road from Adelaide to Melbourne. So the motorist need have no fears of not reaching his destination at Adelaide.

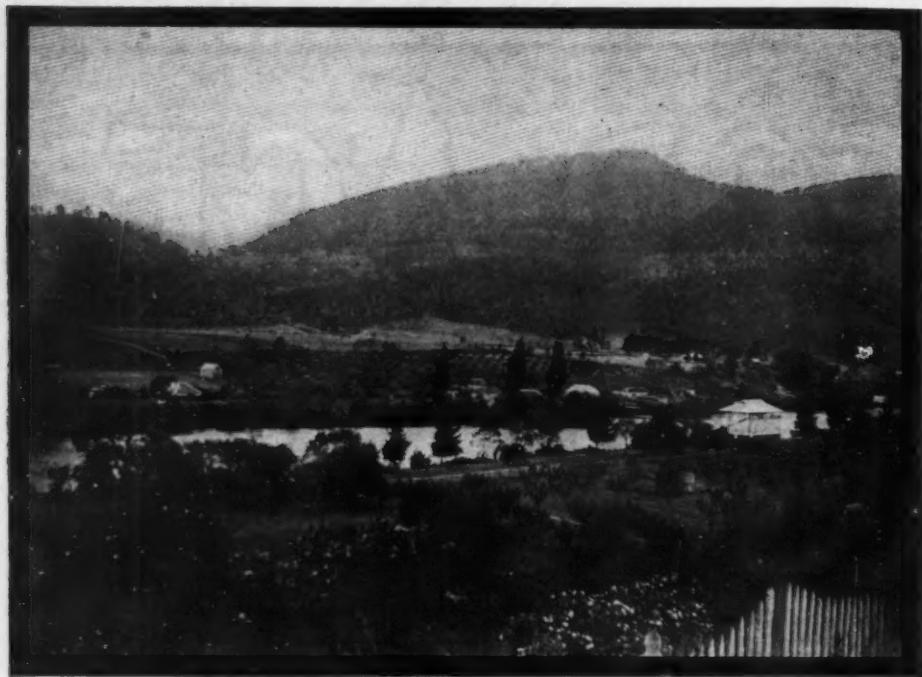
Adelaide, or the City of Churches, as some name it, has a population of 200,000 and has a greater percentage of motor cars to the population than any other city in Australia, the reason for this being that

the car service connecting the suburbs with the city is so entirely inadequate and out-of-date as to force the business man to use the motor. The cars referred to are the old-fashioned horse trams which hold about twenty people and rock about like an Irish jaunting car to the pulling of a pair of half-killed horses. Adelaide is well laid out as regards parks, a 2-mile radius has been taken from the center of the city and dotted all around this circle is a series of fine pleasure grounds and parks. The roads here, like Melbourne, are flat, but not to the same extent. Some extremely beautiful drives can be taken along the foot of the hills, which rise from the plain about 6 miles from the city. The tourist will find many beautiful summer residences in these hills, together with many pretty spots. Here again he will be able to study the tremendous wheat-growing industry of South Australia, and, if he wishes, he may undertake a trip inland and see some most unique and marvelous scenery. The railroad from Adelaide travels some 800 miles to Oodnadatta, but perhaps the tourist may not wish to travel so far north as this town. Only recently two cars started the journey right across the continent by this route and when last heard of they had covered a large part of their journey.

There is no route from Adelaide to Perth, either by road or railway. Although two or three cyclists have done this journey, it is entirely out of the question.

The tourist, if he wishes, can ship his car at Adelaide and after a 5 days' voyage can disembark at Fremantle or Perth, and although a fair amount of motoring is indulged in in these western cities, yet, after what the tourist already has seen, and the large expanse of country he has passed through, I should say this transshipping of his car and the journey to and from Perth or Fremantle would be hardly worth while and in addition would take up a large amount of time. Such a trip as I described would cover the main portion of the populated parts and the tourist would be able to say with certainty that he had seen Australia more thoroughly than he could have done had he traveled by train and coach and would know more about the pastoral and grazing industry, the scenery and the different phases of life in Australia than perhaps the average Australian himself.

A word about the motor clubs and the large amount of help that could be given to the tourist by association with them is



NEW HOFORD IN TASMANIA, TYPICAL AUSTRALASIA SCENE

apropos. All the large cities have clubs and there one would meet motorists who have traveled all the roads in their different districts and consequently information would be given that would be unobtainable elsewhere. The Sydney Automobile Club is quite a sociable and lively organization. Almost every Saturday afternoon or Sunday runs are taken to different spots. Consumption tests, reliability trials, gymkhana, etc., are fairly frequent and sometimes cover from 2 to 3 days. Melbourne and Adelaide also have clubs and these are run on the same go-ahead plan, as the Sydney-Melbourne club at different periods in the year holds a race meeting on a specially prepared track, besides numerous gymkhana, trials, etc. The large reliability trials are generally held by the rival tire organizations.

One will find almost every variety of motor car in Australia. There are French

cars, which are used to a large extent; a few German makes and a large amount of English cars, the demand for which the last few years has been greater than for French machines. The great success of the Italian cars in last year's racing and trials has caused agencies for these cars to be quickly snapped up in the various cities. American cars are scarce, although a good number of Reos has been sold in Sydney. Ford runabouts also can be seen here. In Melbourne a fair percentage of Cadillacs is found, together with one or two Mitchells. Brisbane has many American cars but Adelaide has comparatively few. In Tasmania the Cadillac has a good following and only just recently one of these sturdy little single-cylinders won a reliability trial across the island. Tasmania has quite a few American cars. On the whole the percentage of American cars used, as against the English and French

machines, is very small. Probably the chief reason for this is that the American manufacturer has all he can manage in the home demand. In Melbourne one sees higher-powered cars than in the other cities; there are several 60-horsepower six-cylinder Napiers and one or two Rolls-Royce big touring cars as well as high-powered Darracqs, Renaults, Fiats, etc. Generally speaking, all over Australia the cars used are what the American would call low-powered. The average runabout, generally a two-seated car used by business men to take them to and from the city, and by doctors, whose calling necessitates the use of a vehicle speedier than the horse and trap, is, in most cases, a single or twin-cylindered machine of from 6 to 10 horsepower. Talking of runabouts, there is no car marketed in Australia fashioned after the style of the American roadster, and it is probable that these roadsters with their low seats and rakish, clean-cut lines, would appeal to the speed lovers of Australia, and particularly to the station owner, who, as has been said before, has often to travel 100 miles, either by coach or his own horses and buggy, before reaching his home.

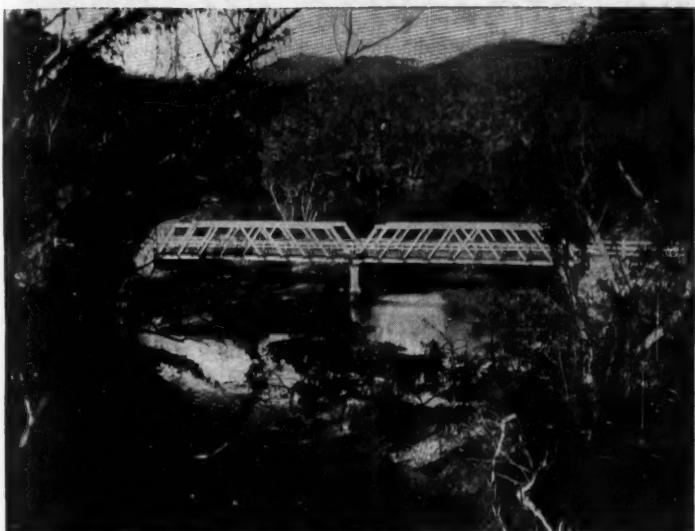
The pleasure car or touring car is generally of from 16-20 horsepower or even lower than that. Latterly there has been a tendency towards touring cars of some 30 horsepower to hold five people, although scattered throughout the colonies one could find cars to hold seven, like so many of the American cars do. The writer remembers seeing a car of this type in Sydney—a 40-horse six-cylinder Minerva. The tariff on complete cars imported into Australia has been raised lately; it is fairly severe, but a manufacturer starting there and putting up a factory would have to compete against agents who import the chassis, tires and body separately and thus save a large percentage of the tariff. I am unable to give the exact figures, as it was only in December last that this tariff was passed by parliament. At present there is a Tarrant car marketed in Melbourne,



VIEW OF SYDNEY FROM THE HOTEL METROPOLE



TYPICAL COUNTRY HOTEL IN NEW SOUTH WALES



BRIDGE IN THE BLUE MOUNTAINS



ONE OF AUSTRALIA'S BEAUTIFUL RIVERS

which, it is claimed, is made in Australia by the Tarrant Motor Co. This car has won two or three reliability trials. It closely resembles the Argyll. The following list gives the names of the cars used, for the most part, in Australia: Clement-Talbot, Argyll, Humber, de Dion, Darracq, Renault, Fiat, Minerva, Swift, Star, Daimler, Rover, Singer, Belsize, Napier, Rolls-Royce, Vulcan, Mercedes, Leon-Bollée, Wolseley, Richard-Brasier, Panhard, Unic, and others. The American representatives being, as mentioned before, Cadillac, Reo, Ford, Mitchell, and, if I remember rightly, the Auto Import Co. of Sydney markets the Lambert and Pope-Hartford. Again the little single-cylinder Olds runabout, or an old style Winton or Rambler may be seen at times. The electric or the limousine body is not seen to the extent it is here. The climate in Australia does not necessitate it and most people prefer a car in which they can do their touring as well as their shopping. The steam car is scarce. I know of one White in Sydney, but there may be more.

Nearly every variety of tire has been tried in Australia. Some makes have failed because the home manufacturer used his agency in Australia as a dumping ground for his spurious goods. Other tires have received a bad name through some speculator buying up a cheap lot from the manufacturer either in Europe, England or America, as the case may be, and taking them to Australia and marketing them there. As every motorist knows, there are a hundred ways a tire can get a bad name, and those that have come through the ordeal and are used mostly are the Continental and Dunlop, with the Michelin and Moseley next in order. The Collier and Palmer tires may be seen once in a while. Now the Dunlop tire is mostly made in Australia; the Continental and all the others are imported. The Dunlop Tire Co. erected its factory in order to make bicycle tires, and it has succeeded to such an extent that practically the whole of the bicycle trade of Australia, Tasmania and New Zea-

land goes to the Australian-made Dunlop tire. In motor tires it is different; the Continentals are running the Dunlop very closely; so closely indeed that one of the latest reliability contests in Victoria run by the Dunlop Tire Co. was won by O. Camphas on Continental tires. This is mentioned in order to show the rivalry of the two tire concerns.

The prizes of all the large reliability trials are always given by the tire companies, which take a big interest in the running of these trials, taking in such tours as Adelaide to Sydney, Melbourne to Adelaide and vice versa, Sydney to Melbourne and vice versa. Big trials of this nature are generally undertaken by motorists from the three cities and rivalry is so keen that like most trials, it generally resolves itself into a race. Observers are furnished by the clubs. In most cases it is not the roads that bring ruin to tires, it is the heat. It is a

common sight to see a motorist during a run, drive his car to a water trough and throw buckets of water on the tires. If one wants to get long life out of tires he must keep them well watered. Five thousand miles is an average distance for tires on light cars without retreading. But it is a hard question to talk distances, for that depends on the driver and his pressure gauge and the manner in which the tire is looked after.

There are very few detachable rims used in Australia; the reason for this is obvious—neither the Continental nor the Dunlop has so far marketed a detachable rim on the Australian market. Tire chains and non-skid devices are not used or needed to any extent; touring cars generally use studded tires on the rear wheels, but these kind seldom last as long as the ordinary square tread rubber. If one carries a set of tire chains in the tool box it is all that is necessary to the touring motorist.



MOUNTAIN SCENERY IN THE BATHURST DISTRICT

## CARNIVAL IN NEW YORK GIGANTIC SUCCESS

NEW YORK, April 11—Promoters of carnival week are well satisfied with the spring celebration which came to an end tonight after a strenuous session which included a varied program consisting of a gigantic parade in which 1,200 cars took part; a most successful climb up Fort George hill Thursday which was not marred by a single accident; a joy ride Friday night and a vaudeville smoker tonight at the Automobile Club of America—surely enough to satisfy the most captious critic. There wasn't a hitch during the week and so everyone is happy.

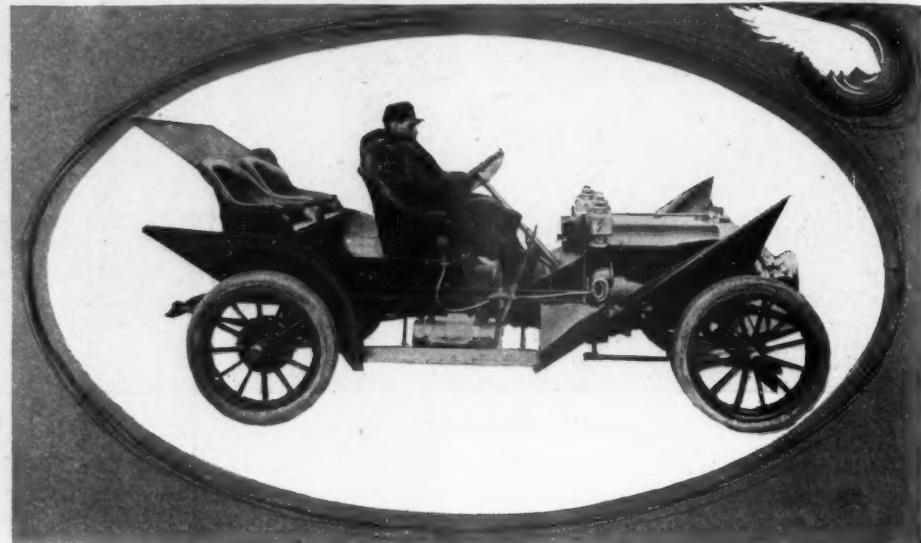
A score of carloads of enthusiasts braved the storm and plowed through the mud last night to make good the joy ride feature of the carnival program, which had Bronxville as its objective point and a dinner at Grammatan inn as its wind-up. There were 171 tickets sold for the banquet and 125 were on hand at the door with their meal tickets; many, of course, had come by train. At the conclusion of the dinner General Cutting circled around among the tables and jollied the newspaper boys and others into indisputably impromptu speeches for the entertainment of the many women present and of their own fellows of the motoring clan.

Carnival week wound up with the presentation of the prizes at the vaudeville smoker, given by and at the Automobile Club of America tonight. Following the presentation of the prizes, a surprise was sprung on General Cutting by Colonel K. C. Pardee, who presented him with a silver loving cup on behalf of his associates on the carnival committee.

As an eye-opener to the extent of motorizing and the magnitude of the motor car industry, New York's carnival was a revelation. A half million people turned out to see Tuesday night's parade. Ten thousand more faced a chilling wind to watch the cars climb Fort George hill on Thursday afternoon. To the practically universal decoration of the hundred or more

buildings devoted to New York's trade was added a remarkably widespread decorative

than did Percy Owen, Frank Eveland, C. R. Teabolt, C. P. Skinner, R. W. Newton



SNOW IN A CORBIN WHICH WON TWO FIRSTS IN NEW YORK CLIMB

emulation by the hotels and big restaurants along Broadway until an embellishment was attained seldom surpassed even on the occasion of great national celebrations in this big metropolis. It was one of the features of the carnival.

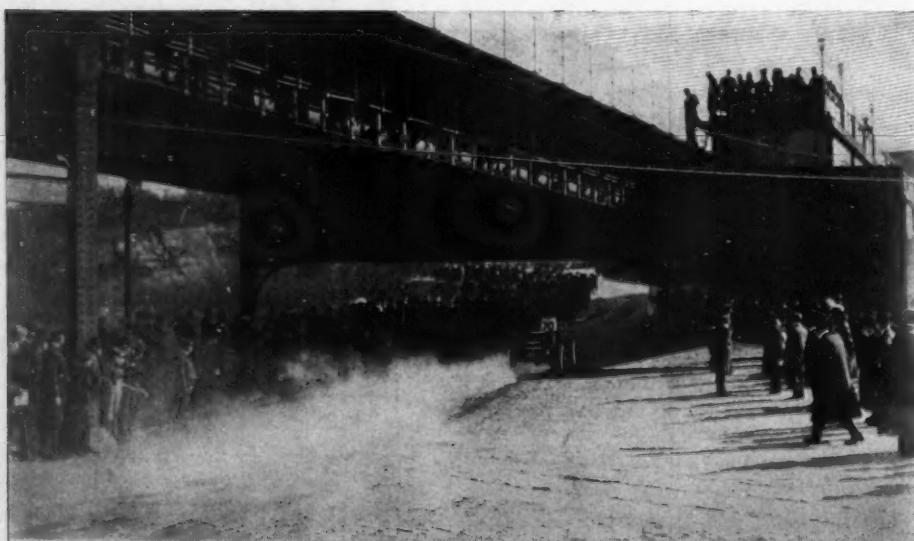
The committee in charge, with General John T. Cutting, who was at the bottom of the start of the carnival and to whose energy, youthful enthusiasm and limitless unselfishness much of the success of the carnival is due, at its head did splendid work, each separate department looking after its own details without a hitch. Colonel K. C. Pardee, chairman of the hill-climb and parade committees; R. G. Howell, grand marshal; Walter R. Lee, secretary of the New York Automobile Trade Association, and C. W. Wurster, who looked after the advertising and publicity, proved able executive heads, but worked no harder and no more efficiently

and Alexander Howell, their associates on the executive and finance committees.

The response of the trade was generous to the call for contributions. Some \$8,500

### RESULTS OF NEW YORK CARNIVAL

Open Free-for-All, All Types and Motive Power			
Car	H. P.	Driver	Time
White	30	White	32 14
White	30	White	32 25
Apperson	62	Apperson	36
Fiat	60	Cedrino	37
Stevens-Duryea	50	Robinson	37 35
Matheson	60	Ryall	40 24
Pope-Hartford	30	Grady	42 24
Knox	30	Bourque	43 45
Pennsylvania	50	Zengle	43 16
Renault	35-45	Guggenheim	47 45
Stoddard Dayton	40	Hodson	49
White	20	Lane	32 14
Four-Cylinder Gasoline Cars, \$4,000 and Over			
Stearns	30-60	Vaughn	42 14
Stearns	30-60	Farrell	42 24
Stearns	30-60	Swan	42 34
Stearns	30-60	Travis	43 34
Simplex	50	Lescault	44
Simplex	50	Broessel	44 34
Stearns	30-60	Picard	44
Stearns	30-60	Oldfield	46
Stearns	30-60	Swan	46
Stearns	30-60	Warren	47
Stearns	30-60	Fickling	48 34
Renault	35-45	Guggenheim	49
Gasoline Cars, \$2,001 to \$3,000			
Corbin	30	Swan	43 44
Knox	30	Bourque	46 25
Pope-Hartford	30	Grady	47
Stoddard-Dayton	40	Miller	47 45
Pennsylvania	50	Zengle	49
Pope-Hartford	25	Grady	49
Pope-Hartford	30	Heiner	50
Corbin	30	Barbour	50
Pope-Hartford	25-30	Penton	50 14
Pullman	40	Cimolli	50 45
Stoddard-Dayton	40	Hodson	52 24
National	45	Teator	52 43
Glide	45	McCaffrey	52 20
Crawford	40	Crawford	52 45
Oldsmobile	35	Weisbecker	1:00 15



CARS RUNNING UNDER ELEVATED BEFORE TAKING THE TURN

was subscribed to the general fund. General Cutting says the raising of \$20,000 next year will be easy. It is planned to make next year's carnival far more elaborate and have the week not only embrace a parade and hill-climb, but racing and other contests as well. How great an interest had been aroused, not only among motorists, but also the public at large in the carnival, was attested by the enor-

mous crowd in attendance at the hill-climb, which took place on Fort George hill on Thursday afternoon. There could not have been far from 10,000 onlookers.

picking out of relative times. The policing of the course was perfect, two captains being in charge of the mounted cops and patrolmen. With the signalling of a car

of 10 seconds' difference to the bad under this spring's conditions as compared with last autumn's, was confirmed by that dropping in times of the average of the big Stearns brigade. The Fort George hill course, over which the cars were timed, is a 1,900-foot stretch of Belgian block and a finishing stretch of macadam, with an average rise of 11 per cent.

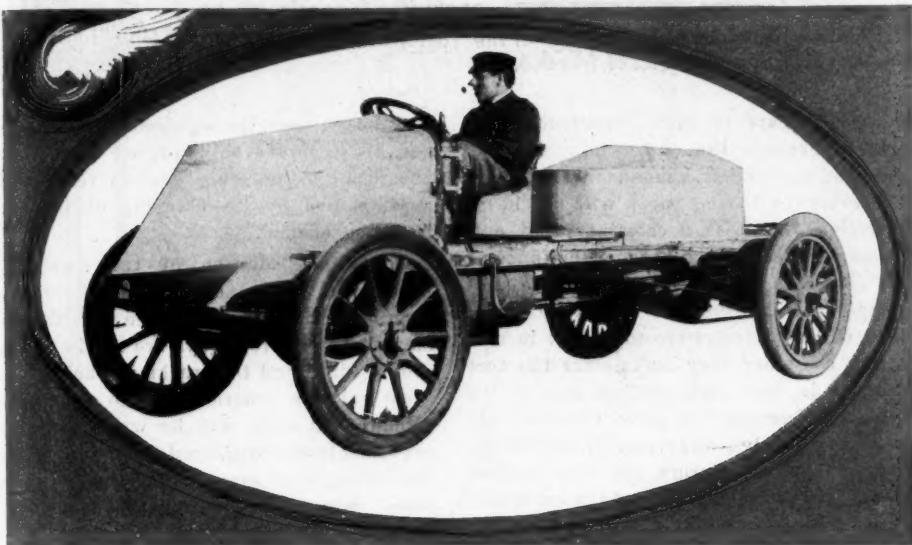
The high speed honors of the climb were carried off by Walter C. White, who captured the free-for-all trophy and also the cup offered for the fastest time, with a score of 32½ seconds. The White steamers gained added laurels by Walter White's putting across the tape a second car in :32½, thus capturing second speed honors as well, and by a stock car of this same make also winning the event for steam machines which was on the card.

Edgar Apperson proved his Apperson to be the fastest of the gasoline contenders by a record of 36 seconds in the free-for-all. Referee Pardington, by the way, barred this Apperson "Big Dick," which was said to be a counterpart of the company's Vanderbilt cup racer of 1906, from the stock car class on the ground that it did not comply with the stock car conditions of the rules.

The best climber in the stock car division evolved in the Stevens-Duryea big six, which, piloted by P. J. Robinson, captured not only the \$3,000 to \$4,000 gasoline event, but the six-cylinder cup as well.

Four-cylinder gasoline stock car supremacy perched upon the banners of the Stearns, Guy Vaughan winning the \$4,000 and over event in 42½ seconds. A double victory went to the Corbin, J. W. Swan capturing not only the \$2,001 to \$3,000 gasoline climb from the biggest field of the day, but the all-type class with the same price limitations.

The other gasoline events went to a Maxwell in the \$850 and under, a Mitchell in the \$851 to \$1,250, and a Jackson in the \$1,251 to \$2,000 class. H. E. Wagner carried off the electric cup, his Babcock making the ascent in 1:24.



WALTER WHITE IN WHITE STEAMER, WINNER OF TIME HONORS

With A. R. Pardington as referee, Fred J. Wagner as starter and the New York Timers' Club in command of the timing machine, S. M. Butler, C. J. Dieges, Lieu-

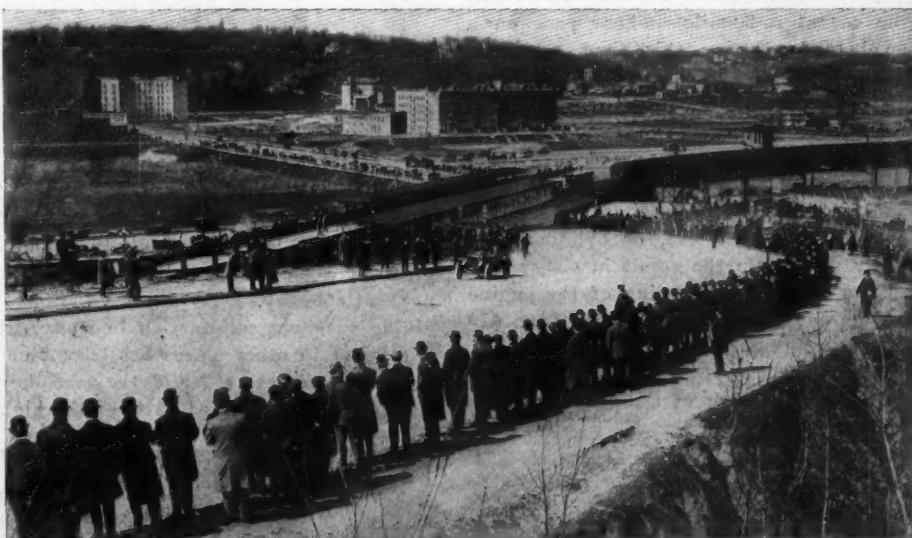
coming, every intruder was forced back to his place on the curb.

The enthusiastic co-operation that marked the progress of the whole carnival was in evidence in the response of the dealers to the call for entries, seventy-one cars actually starting in the eleven events scheduled. The contests were essentially dealers' demonstrations, for with the single exception of the free-for-all, every event was for stock cars and stock cars with every bit of equipment carried at that. The difficulty of the climb was greatly enhanced by a start from an absolute standstill, with a run-in of less than 200 feet before the actual climbing began, the time, be it remembered, being taken from the actual start of the car and not from the time of its beginning the ascent. In last year's contest with a flying start, Frank Leland set a record mark of 29 seconds with a six-cylinder Stearns. The estimate

#### CLIMB UP THE FORT GEORGE HILL

Gasoline Cars, from \$3,001 to \$4,000		
Stevens-Duryea	35	Robinson
Cleveland	40	McCaffrey
Mora	42	Burke
Allen-Kingston	40-45	de Palma
		1:05 1/5
Six-Cylinder Gasoline Cars, Over \$4,000		
Stevens-Duryea	50	Robinson
Stearns	45-90	Vaughan
Hotchkiss	65	Gatzen
Acme	45	Arnold
		:55
Steam, Gasoline or Electric Cars, \$2,001 to \$3,000		
Corbin	30	Swan
Knox	30	Bourque
Corbin	30	Barbour
Pullman	40	Cimolotti
Knox	25-30	Lynch
White	20	Lane
		1:07
Steam Cars Only		
White	20	Lane
		:54
Gasoline Cars, from \$1,251 to \$2,000		
Jackson	35	Burman
Corbin	24	Tucker
Aeroar	30	White
Mitchell	35	Edgerton
Maxwell	24	Fleming
Pullman	20	Morton
Oldsmobile	32	Stuenwald
		1:11 1/5
Gasoline Cars, from \$851 to \$1,250		
Mitchell	20	Olney
Reo	18	Lockwood
Overland	22	Forbes
Jackson	22	Burman
		1:34 3/5
Gasoline Cars, \$850 or Under		
Maxwell	14	Fleming
Maxwell	14	Ross
		1:19 1/5
		2:22 1/5
Electric Cars, All Types		
Babcock	3	Wagner
Babcock	3	Clyde
		1:24
		1:49 3/5

tenant P. A. Sayles and E. LeRoy Pelle-  
tier holding the watches, everything moved  
with the precision of well-oiled machinery.  
Starter Wagner, assisted by Colonel Par-  
dee, Alfred Reeves, A. L. McMurtry,  
Frank Eveland and Mortimer C. Reeves,  
lined up the starters and got them away  
with only two or three exceptions in classes,  
so the events were complete without the  
necessity of any subsequent sorting and



STRAIGHTENING UP FOR FINAL DASH UP FORT GEORGE HILL



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# MOTOR AGE

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## ATTENTION TO NEW CARS



**X**AMPLES are at hand every day of the troubles experienced with cars fresh from the factory and which have not had sufficient road work before being delivered to the customer. The results of this imperfect roadwork are many and varied, but those giving more trouble are generally confined to lubrication and loose parts. Where lock nuts are not used, it is a certainty nuts will work loose in the first hundred miles, often less, and if these are not tightened some of them will be lost. That owner is wise who stops at the end of the first 20 or 30 miles of his traveling, if it be over country roads, to make a hasty examination of all the car parts to see if any of them are working loose. In this regard a stitch in time saves nine, and less than a dollar spent at this stage of the car's trial will frequently result in the saving of nine times nine dollars before the expiration of a season.

It is a generally understood fact that motor lubrication must receive special attention in a new car, particularly so if it is of a medium-priced order in which the maker cannot afford to give it that 24 or 36-hour block test followed by a 100-mile road test that many of the higher-priced cars receive. With the untried motor, oil in abundance must be fed to it until the pistons and their rings are accommodated to the cylinders. Lack of plenty of oil will immediately result in loss of power to such an extent that the car will fail to climb small grades on the high gears, making it often necessary to drop to the low; and it not infrequently happens that a new motor, short of oil, will fail to pull the car at a 20-miles-an-hour pace on a level road. During this time, which is exasperating in the extreme to the driver and passenger, the motor is injuring itself; add oil and in a few minutes it shows its normal running speed of 35 or 40 miles per hour; be late in adding that oil and a pound develops—a connecting rod bearing is burned out, or cylinders are badly scratched; the result in either case calling for the dismantling of the engine and an outlay ranging anywhere from \$10 to \$50 or more.

But while the injury to the motor is borne by the owner of the car, the manufacturer is a big loser. He has not been at peace with the driver and passengers while the loose parts of the car and the heating of the motor have been occurring; instead unkind remarks are made concerning the carelessness of the factory in

delivering cars in such imperfect condition. Perhaps the owner may not feel disposed to publicly announce such a fact, but everyone in the party will not be so secretive and it is a certainty that outsiders will hear of the poor performance of the machine. These outsiders are not sympathetic individuals in every case; they will not always see to it that in narrating the story they make clear the fact the car is well designed but due to "a little carelessness" it gave troubles that were "slightly annoying." Indirectly, the rival manufacturers, the rival dealers or the rival salesmen hear of the car's performance and are not slow after coming into possession of this new hammer with which to batter their rival's interests. As the story of the "poorly tried out car" progresses on its circuit it is exaggerated; in a short time it ceases to be a new car; a little later the loose nut has been magnified into a broken part; the lack of lubrication has been translated into "a cooling-by-oil engine"; and the cumulative score of the car's defect is so grossly exaggerated as scarcely to be recognized as an evolution of the original facts.

## SIGNBOARDING HIGHWAYS



HE last 3 or 4 years have seen developed through many states of the union campaigns for placing signboards on the leading routes adjacent to cities or towns where live motoring organizations have their headquarters. The work, a highly commendable one, has consisted in many cases in erecting cheap wooden signboards at the corners and turning-points of the roads, giving the mileage to different points; in other cases, wooden boards have not been used, preference being for enameled signs of varying nature; still other examples show the use of tin on a wood background, on which the directions are painted. In all of these examples of excellent motor club activity the lack of permanency has been the one point open to criticism. A wood sign cracks, requires painting each season and unless a particularly valuable grade of wood is used it is short-lived and not satisfactory. The enameled sign is giving excellent satisfaction in many districts, but in other places has been found too brittle for the stone of the schoolboy, who, on the sequestered parts of the high-

way, often uses the signboard as a target for his accurate catapult, or sling shot, the result being a big dent in the board, accompanied by the chipping of the surrounding enamel.

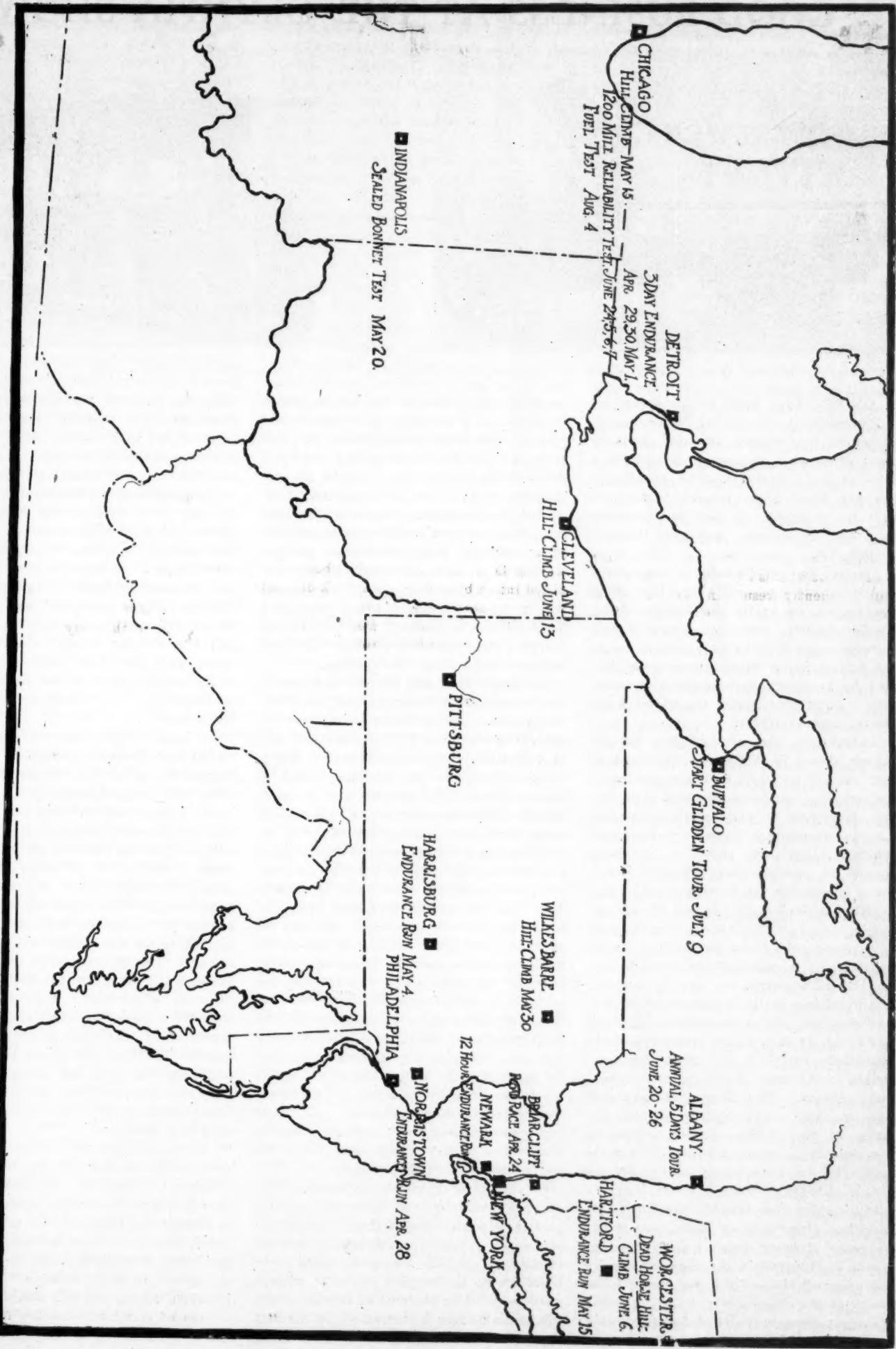
The exact solution of the signboard problem is not so close at hand in this country as abroad, due to the fact that in many cases our roadways are not in an improved state and the tracks are not in the same relative position to the fences or ditches that they will be when road improvements are completed, the result being the difficulty of properly placing the signboard with reference to the track. In France, where the tracks occupy the same position as they did in the days of the Romans, it is possible to use small cement pyramids in which the letters are formed at the time of manufacture and which road signs have stood the lapse of centuries. In America we cannot use these as yet; in some places there is not room for them, in other places we would have to move them with every road improvement—two facts which seem to argue against the use of such road marks.

Germany, after much experience, is using malleable iron signs with embossed letters and carries these on cedar instead of concrete or steel posts. Where iron or enamel signs are used in other continental countries, the cedar post is popular, it having been proved conclusively that by creosoting the portion of the post entering the ground its longevity is immeasurably enhanced. Cement posts are excellent, but the cost of transporting them to roadside places is prohibitive. Various types of metal posts have been found to corrode and break at the surface of the ground and are not as popular as was anticipated.

Clubs or other organizations pursuing the signboard work during the approaching season should keep permanency as their main objective. Let the watchword be not how many but how permanent. One route well signboarded is preferable to two routes poorly signboarded. Not a few clubs are at present on record as opposed to expending funds for signboard work unless the signs and posts are the best and most permanent obtainable. It takes as long to put up a poor signboard as a good one and a good one is an example that will endure for a generation if painted periodically.



MOTORING EVENTS SCHEDULED FOR THE NEAR FUTURE IN THE UNITED STATES AS SHOWN BY OUTLINE MAP



## GOOD BUSINESS AT THE OLYMPIA SHOW



ARGYLL AND CLARKSON, TWO EXAMPLES OF PRACTICE OF PLACING ENGINE UNDER DRIVEE'S SEAT

ONDON, Eng., April 4—The second international commercial motor vehicle and motor boat show at Olympia closes to-night after what appears to have been 8 days of good business. The attendance has not been large, but the exhibitors have not deplored this fact, as those who have visited the show have gone there to do business.

America has as its sole representative in the vehicle class a Frayer-Miller truck and engine, shown by the Darwen Automobile Agency, recently appointed sole representative for the Oscar Lear Co. in the British isles. McCord oilers are handled by an agent, and Goodrich tires occupy a large stand under the name of the British representative.

Undoubtedly the most original taxicab chassis shown is the Austin, in which is seen the old principle of the under frame for carrying the motor, flywheel and gearbox developed in very original fashion, with the result that there is no main and subframe, but two equally important frames in combination. Thus the narrower serves for the front portion of the vehicle, achieving the means of an exceedingly sharp wheel-lock without the need of narrowing the frame forward; while the wider frame is rearward and supports amply broad bodywork, the two in combination resulting in the provision of double side members, where the greatest strength is wanted, namely, where the frame is unsupported, yet has to carry the most weight in the guise of the engine, flywheel and gearbox. The four-cylinder motor rests on three rubber buffers, and the undoing of four bolts enables it to be dropped out of the machine, while it is exceedingly accessible from above by the simple tilting forward of the driver's seat; besides this hinged doors are furnished on either side, as in the case of the Coventry Humber cab. A very low entrance is achieved in the Siddeley cab by the acute sinking of the mid part of the frame of the chassis.

Cage passenger vehicles for service in connection with railroad companies come

second in importance to the taxicab, closely followed by gasoline and steam trucks of from 2 to 10 tons' load capacity. This year the motor bus is in the minority, probably owing the fact that in the metropolis, at any rate, the supply has exceeded the demand. Passenger vehicles for other services, however, such as auxiliary railroad work, feeders in connection with surface cars, and observation motor cars in holiday resorts are plentiful. For heavy traction, steam more than holds its own in England, and for vehicles carrying but 3-ton loads there is keen competition between the two systems.

An offshoot of the taxicab business is the construction of commercial travelers' broughams. Mechanically this type of vehicle is identical with the taxicab, but in bodywork there is considerable difference. Thus, on the de Dion stand is shown one of these vehicles with a single cylinder 10-horsepower engine and closed body with only one inside seat, the remaining place being occupied by a series of drawers, cupboards and trays. As English commercial travelers have to operate over big but closely populated areas, in which both trains and street cars can be of little service, an economical vehicle of this type should have an immense success.

In the lightest type of delivery vehicles there is a surprising scarcity, in view of the fact that English retail trade still is largely held by small and medium-sized concerns having quick deliveries to make. In this class the only vehicle which attracts attention is the Roval, with the entire power plant over the rear axle, leaving nine-tenths of the wheelbase free for bodywork. This vehicle has been described recently in *Motor Age*.

Of the motor buses shown the majority are gasoline, although there are several gasoline-electric, one electric and a few steamers. In the Arrol Johnston gasoline chassis an original system is followed in building up the engine in units with a view to reducing the cost of repairs to the minimum, as may be instanced by the fact that a cylinder casting, without the head,

could be replaced for the sum of \$2.87. Thus one finds that the base-chamber is built up in three parts, while the cam-shaft and valve lifters form another unit, and the cylinders themselves are built up in four portions, the first consisting of the casting, the second of the copper water-jacket, the third of the cylinder head, and the fourth of the combustion chamber and valve chests. In this machine the chains are enclosed in cases, a spring drive is furnished at the end of the propeller shaft, the torque rod is cut out of boiler plate, and the tubular radius rods carry the brake gear and differential countershaft, so those vital parts of the mechanism are isolated from road shocks by being indirectly sprung.

An interesting example of coachwork on one of these chassis is shown in the Chota-Nagpur motor service vehicle that is divided into compartments, the second class being in front and the third class aft, seating accommodation not being provided for the natives. Among the steam omnibuses there is the Critchley-Norris novelty. The engine is of the single-acting type, worked with tappet valves. The fan behind the condenser induces air that is carried under the cylinders to the flame. A water filter at the base of the condenser extracts the oil before the cooled liquid is returned to the tank. A novel feature is that the whole of the steering gear can be taken down without removing the floor-board. The Clarkson steam bus also has some features that are departures from previous models of the make, the power being derived from a water-tube boiler fired with paraffin.

One of the most novel omnibuses in the show is the Daimler machine built for the Gearless Omnibus Co. The feature of the Daimler gasoline-electric system is that it enables the motor to run at a constant speed, which is more economical as regards fuel consumption and wear and tear because there is no occasion to accelerate it when taking on the relatively great strains of starting. Another feature that makes for economy is that even the appli-

cation of the brakes serves to accumulate, not to dissipate, power. In these machines the dynamo, being the fly-wheel, is never entirely exhausted, while as to the life of the brushes they have been run 8,000 miles without so much as requiring to be looked at. These buses need no clutches, and have no gears to be put in mesh. All the transmission mechanism runs in oil. The batteries are accessible, being under the driver's seat, while the mid-portion of the frame, being without traverse members, is relatively flexible and also serves the purpose of radius rods. The disposition of the rear springs is to be noted, the back part of the body-work being carried directly on them. Another gasoline-electric bus is the Greenwood & Batley chassis, wherein the generator has two shunt windings and a series winding, being so arranged that the circuit cannot be re-established at a high voltage. The two motors are electrically independent, though they have one yoke in common and are series wound. The controller provides for four speeds, the parallel position being used for all ordinary running, but for steep gradients the motor armatures can be placed in series. The two other intermediate speeds are got by putting the motor fields in series instead of parallel. This bus is an interesting study.

For loads of from 1 to 5 tons and still higher by the use of steam tractors, there is a display at Olympia which proves conclusively that the British merchant is desirous of something more efficient than horse delivery service. The interesting feature about the entire exhibit is that commercial motor manufacturers do not show a chassis only, but a series of vehicles completely fitted for different classes of trade. This novelty has attracted widespread attention at the show.

From 1 to 3 tons gasoline holds its own, steam being in a decided minority and electric transmission very feebly represented. Electric trucks are entirely absent; indeed the only vehicle in the exhibition obtaining its power from storage batteries is an electric bus, representing a line recently put into operation in London. For 3-ton loads and above, steam is a serious rival of gasoline, and for the heaviest types of traction, as, for instance, breweries and the building trades, is in a leading position. Therefore, the steam rigs come in for more than the usual attention.

Engine design for trucks follows well-defined lines in general principles with considerable diversity in details. Excepting the American Frayer-Miller, there are no air-cooled engines and but few examples of kerosene or alcohol-driven motors. Four-cylinder water-cooled vertical engines, either forward under a bonnet or below the driver's seat are the standard type. It is in transmission and especially in final drive that diversity of design is apparent. Sliding gear, a countershaft and side chains, as in heavy touring car practice, hardly occupies first position in

the commercial field. Parenthetically, it may be mentioned that where this type of drive is employed chain cases always are fitted. Cardanshaft, with final drive through a rear live axle, strengthened for the heavier work it has to perform, is prominent for the medium-weight truck, while worm drive is noted in many cases. Internal spur-gearred final drive is noted in a number of cases in the show on the more powerful units.

The commercial steam motor car being really a development of the traction engine, the construction of which was carried on long before Britain was freed from the red flag law, it was natural that a nation that always has led in steam engine work should turn to the tractor for heavy road work. And in doing so it has not found the tractor wanting.

For country haulage, for use by market gardeners, millers, brewers, etc., the steam tractor carrying a load of 3, 5 or 6 tons, and capable of taking up to 10 tons, by means of trailers, has won a strong position in England. A large number of the manufacturers of these vehicles hail from the coal, iron and woolen manufacturing districts of the north, where steam engineering always has been well developed and where heavy traction in connection

with the varied industries is common. Under the motor car acts, these vehicles are allowed to run at a speed of 8 miles an hour with steel tires and 12 miles an hour with rubber tires. Especially in the northern manufacturing districts they are being extensively used now, not only as an auxiliary of the railroad, but competitively for journeys of less than 40 miles in length.

Owing to their use with and without trailers and at different legal speeds, provision is made on many of the steam tractors for the convenient changing of road wheels, steel bandages being employed for country work in summer, rubber for town service without trailer, and timber-faced wheels over greasy or frozen roads. A good type of changeable wheel was noticed on a Sentinel steamer, the fixed wheel being one shape and the dismountable part being shaped to fit over it, attachment being by lugs on the dismountable rim to take bolts passing through holes on the fixed felloe. This idea has been carefully studied by experts.

A very convenient type of gasoline tank filler is seen on an Arrol-Johnston bus chassis. The tank, which is under pressure at the rear, has a projecting pocket 4 inches in diameter by 10 inches deep, fitted with a bucket strainer. Gasoline can thus be poured in without the use of a funnel, and should any of it be spilled there is no danger of it running over the woodwork of the car. With the increase of motor buses and taxicabs in the city of London, special police regulations have been brought out to protect against fire, one of them being the carrying of a fire extinguisher on each vehicle. Therefore, this scheme will be appreciated.

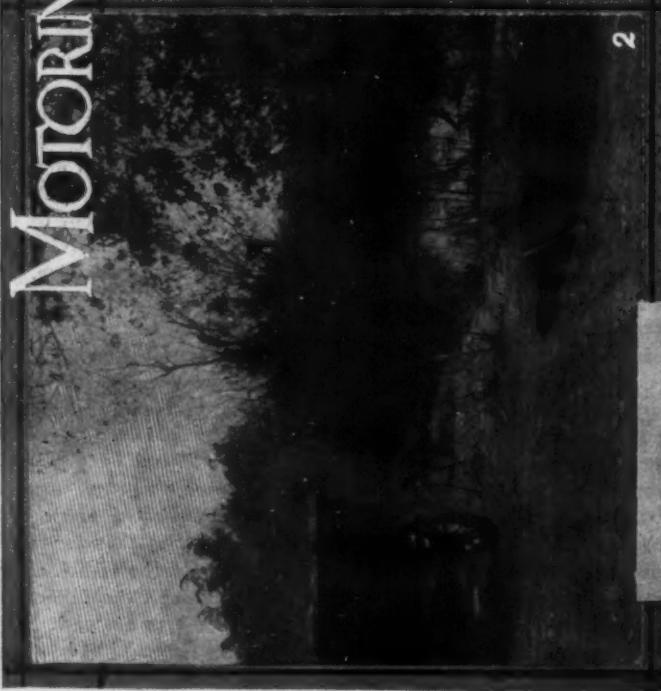
Though not a very common practice, it is learned in conversation with exhibitors that several concerns supply their vehicles to business houses at a fixed monthly rental covering all costs. The manufacturer undertakes to have the vehicle at the disposal of the customer, in charge of one of his own drivers, for a certain number of hours per day, and to keep it in working condition on the terms stipulated. Though the arrangement is one of limited application, the fact that it is being entered into by reliable firms is conclusive proof of the strong position that the commercial vehicle has attained here. The practice, too, is growing in England.

A new type of cushion tire displayed in the well-fitted accessory section consisted of lengths of rubber with projecting rubber studs forced into a perforated steel rim, so that the studs will project. The bases of the air spaces are closed by the insertion of steel dividers or washers, some of which are tapped to take the screw ends of bolts. The cushion tire thus formed is forced over the felloe of the wheel, a few bolts being passed through the felloe and binding rim into the tapped washers to make all secure. The tire subject has been given particular attention.

### Proposes Rural Test

Washington, D. C., April 11—At the request of the Postal Progress League Representative Bourke Cockran, of New York, has introduced a bill in congress to establish an experimental motor-post-coach rural service. The bill provides that the sum of \$60,000 be appropriated for the establishment of an experimental motor-post-coach service for the coming year on a number of rural routes to be determined by the postmaster general. These experiments are to be made on routes well graded and macadamized, and are to start from post-offices at or adjacent to a railroad or trolley station. At least twice a day, morning and afternoon, at hours convenient to the public, two motor-post coaches equipped for the transport of merchandise, baggage and passengers, will make trips in opposite directions from the same postoffice over the same course. Sunday services and additional week-day services may be provided as the postmaster general deems advisable. The speed capacity of each post coach shall be at least 100 miles per day, and one coach may be made to serve two or more routes. The carrying capacity of each post coach shall not be less than ten passengers and 1,500 pounds of merchandise or baggage. Various rates are to be charged for the transportation of merchandise and baggage. Passenger fares per trip within each route shall be as follows: Adults, 10 cents; children, ordinary single trips, 5 cents; children, to and from school, round trip, 5 cents. It is provided that the act shall go into effect July 1, 1908.

# MOTORING IN HISTORIC ENVIRONMENTS



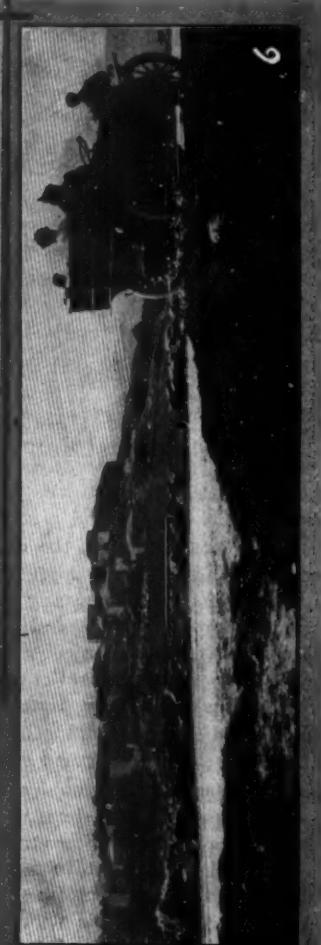
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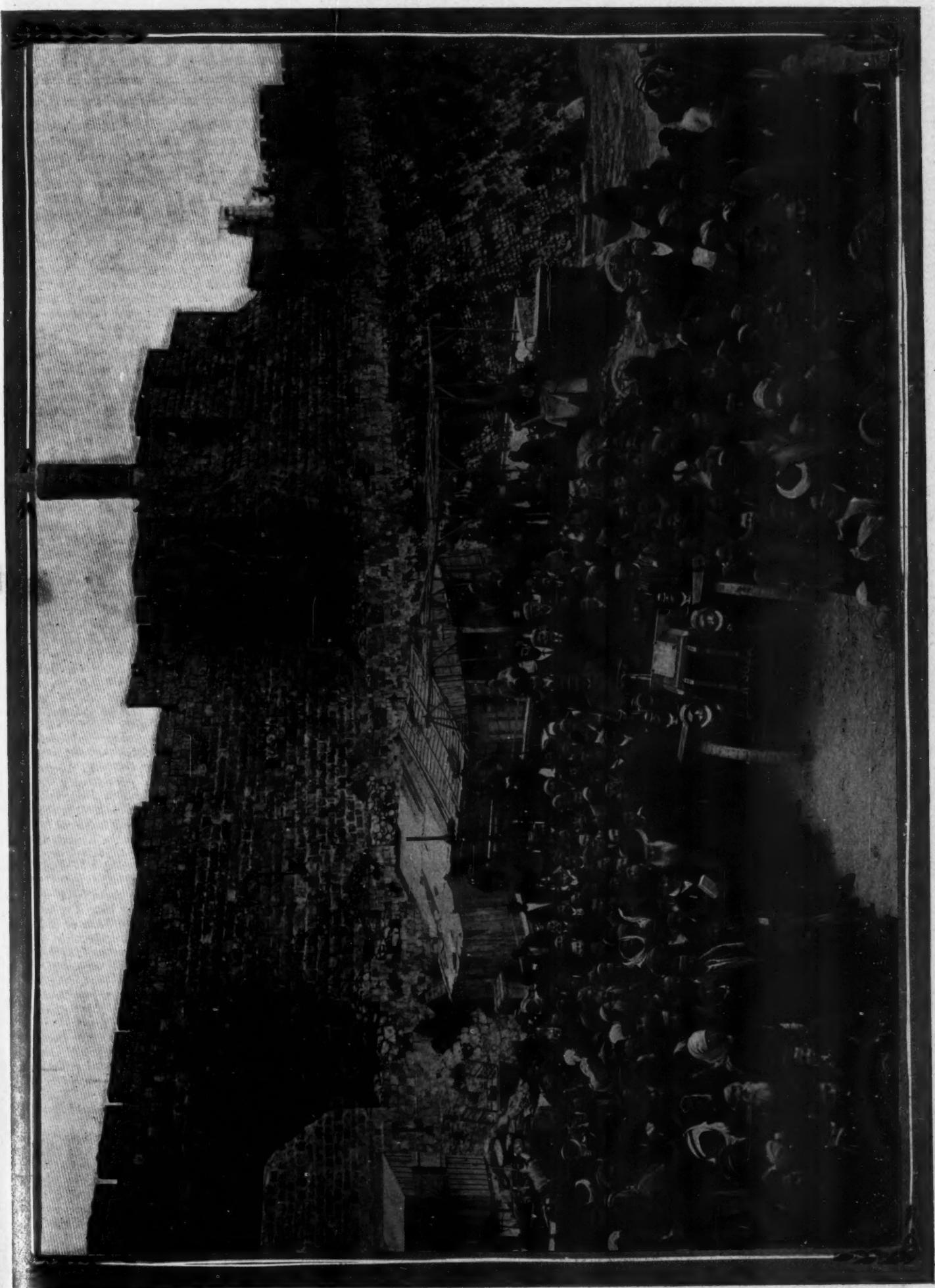


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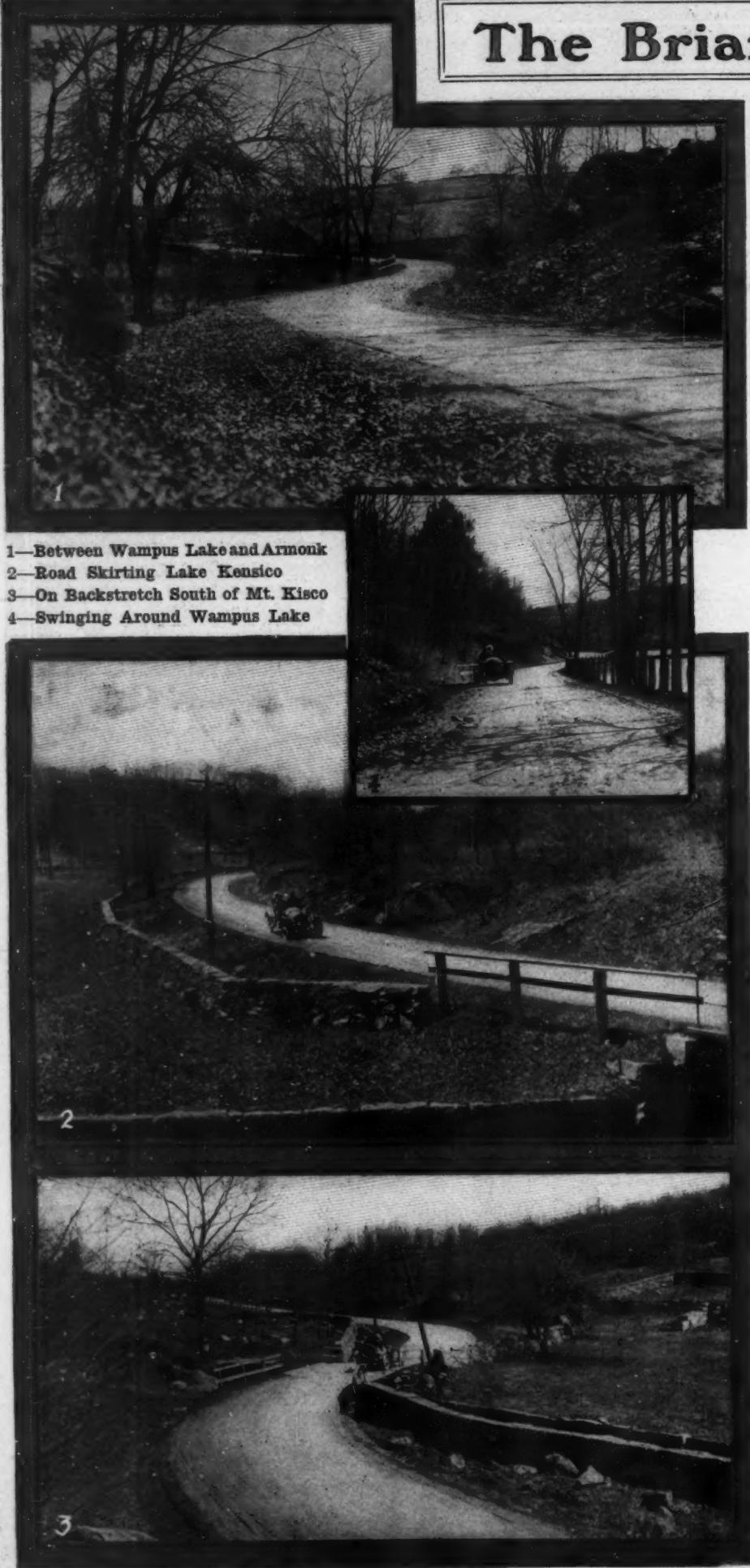
Although foretold by the prophet Nahum 2,621 years ago that "the chariots shall rage in the streets, they shall jostle one against another in the broadways; they shall seem like torches and shall run like lightnings," it remained for 1908 to witness the advent of the long-prophesied motor car into the historic environments that cluster in the shades of such world famed spots as Jerusalem, Bethlehem, Hebron, Nazareth, Haifa, as well as the Jordan river and Dead sea. On March 11 Charles J. Glidden and Mrs. Glidden reached Haifa in Syria, ready to land for a tour through Palestine and the Holy Land, and in writing of the trouble of landing Mr. Glidden has the following to say: "We nearly lost the motor car in attempting to make the landing from the steamer, lying a mile away from the shore.

A high wind was blowing and a heavy sea running; the lighter lost its mast, jib and rudder—seas swept the boat from stem to stern, drenching us to the skin—all control of the boat was lost, but we fortunately were blown ashore on the beach and three of the crew jumping overboard with a rope managed to make the lighter fast. The motor was finally landed ashore without damage by extemporizing a bridge of planks as soon as the seas had subsided. The motor, the first seen in this country, is creating a great interest, and throngs follow the car through the narrow streets. The popular interest is only

equaled by that evinced in Fiji on the occasion of the first visit of a car to those islands." The large illustration—No. 1—on the opposite page shows the Glidden party with Honorable T. R. Wallace, American consul, and Mrs. Wallace seated in the tonneau; in the background rises the walls of Jerusalem with the Jaffa gateway in the center and David's tower conspicuous to the right, while packed around the car is the typical multitude that now occupies this historic world center. In one view—No. 5—a glance is obtained of the Dead sea, which body of water without an outlet measures 46 miles in length, from 5 to 9 miles in width and is 1,292 feet below the level of the Mediterranean. View 2 shows a glimpse of the Jordan river, a stream 200 miles long and varying in width from 30 to 50 yards. Its banks in places are precipitous white marl cliffs. The stream is crossed by forty fords. In illustration 4 a glimpse is had of the Apostle's well on the Jericho road. View 6 is Bethlehem from the approaching road, and views 3 are typical Bedouins of the place who are everywhere present.



## The Briarcliff Course



NEW YORK, April 14—With the carnival successfully disposed of, the Briarcliff trophy race, which will be run over a 30-mile course in Westchester county during the forenoon hours of next Friday, monopolizes the attention of the metropolitan motor world. The New York dealers and importers have given the contest support to the extent of twenty-two entries, equally divided between the domestic and the foreign product. The American end of the contest will be held up by three Stearns, two Loziers, two Simplexes, a Thomas Flyer, an Allen-Kingston, a Hol-Tan Shawmut, and an Apperson. French importers will be represented by two Renaults and a Panhard. Rival Italian teams will be a Bianchi, a pair of Fiats, and a trio of Isottas. Austria will be in evidence with a Maja, and Germany with a Benz.

The committee in charge has been lenient in its interpretation of the rules of the race restricting the cars to stock chassis by deciding that cars with Kaiserpreis equipment are eligible, on the theory that the big annual struggle in Germany was intended to be a race for touring cars and by accepting other entries on the assurance that at least ten cars of the competing model had been or would be built.

The normal difficulties of the course arising from numerous sharp turns, narrow stretches, and an absence of macadam surface for nearly one-third of the way are likely to be considerably magnified by soft and rough going on the dirt road sections due to early spring mud. These obstacles will, it is believed, come pretty near to placing all of the cars on a fairly even footing and leave the outcome largely dependent on the skill of the pilots. It has been persistently reiterated by its promoters that the contest is intended to be a test of stock chassis under touring conditions rather worse than normal. It looks now as if the conditions alleged to have been aimed at had been secured to an extent a bit beyond the hopes of the management or the expectations of those that made the entries. A fortnight ago there was some talk of the advisability of a postponement to a later date, when a dryer and better prepared course might be expected; but the entrants decided to take all risks and voted against a postponement. The question of added practice expenses and the original promise of the promoters to furnish the local trade with an event that should stir up spring business a bit earlier than formerly also were among considerations that influenced the New York tradesmen in their vote against postponement.

Criticisms of the unpreparedness of the course by the entrants and the local press have spurred the committee in charge to greater efforts to eliminate the early spring ruts and mud holes and not only possible but fair racing conditions are promised by the promoters by the day of the race and perhaps in time for a little

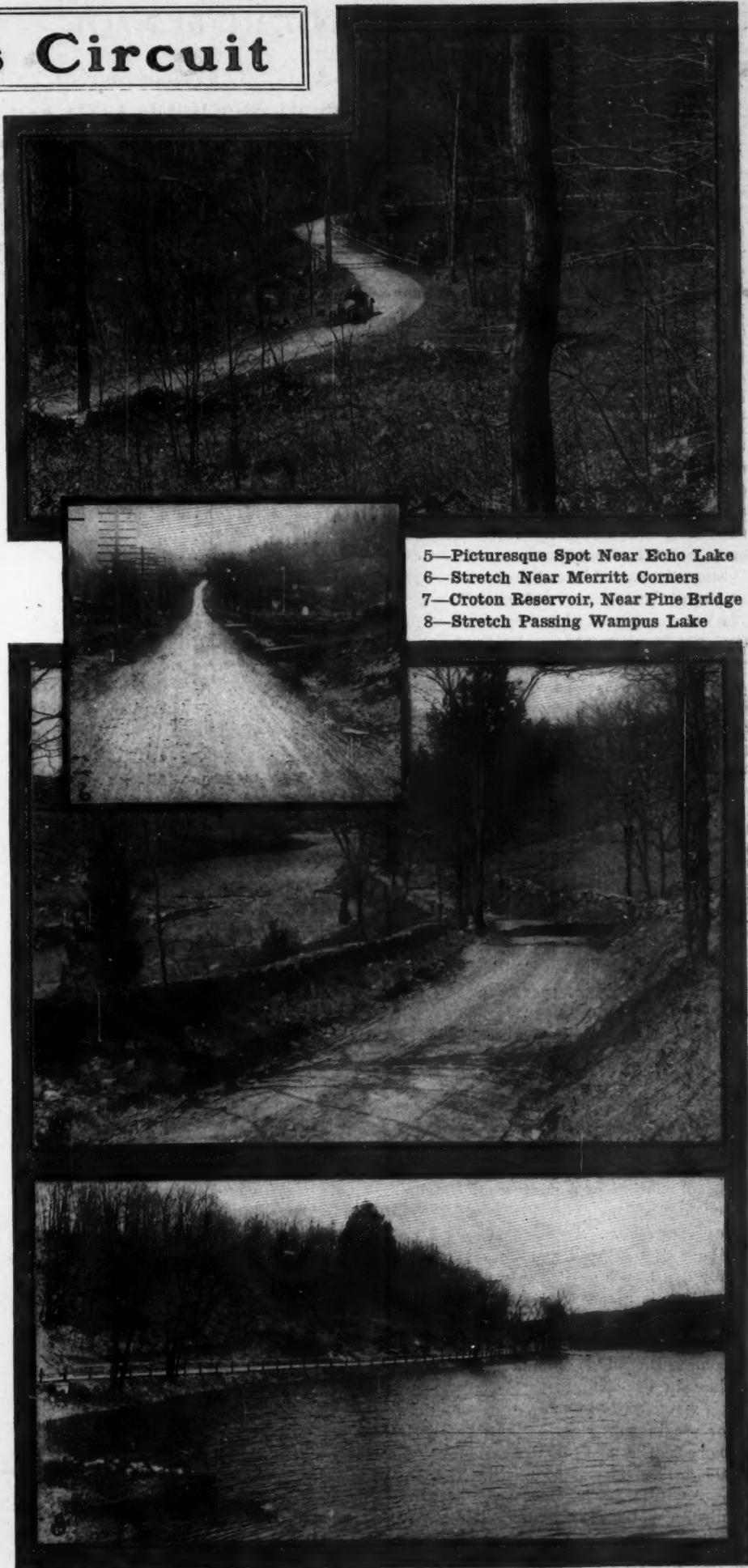
# A Tortuous Circuit

more universal practice with the competing cars than prudence has so far permitted, much of the preliminary training so far having been confined to a study of the sharp turns in touring cars.

The present bad condition of the course or its probable state on the day of the race after all promised repairs have been made not being taken into consideration, the route normally presents great obstacles to high speed. The curves practically are continuous and sharp turns frequent. In fact, eighteen bad turns to the circuit are admitted by the management. It will be remembered that the sinuosities of the Savannah course, even with the sharp curves well banked, slowed down cars that had shown a 70-mile an hour ability on the straightaways to an average of 50 miles an hour in the race. The Georgia circuit was a race course as compared with the Westchester route. Accordingly, the possible and probable average rate per hour likely to be attained by the Briarcliff candidates becomes a matter for the committee's serious consideration in view of the fact that the road will be closed against the racing cars at 1 o'clock in the afternoon. With the start set for 4:45 o'clock in the morning, there will be 8½ hours available for the 300-mile run at present scheduled. This will require an average of 36½ miles an hour to complete the race in time. The fastest single laps in practice so far reported were done in about 50 minutes, an average of 36 miles an hour. There is every hope, though, that by the day of the race the course will so far be improved as to admit of a cut of 5 minutes per lap at top speed going. This would give 40 miles an hour average. Unless the course be improved far beyond expectations, it would seem highly improbable that an average speed of 45 miles an hour will be attained.

Racing camps have been pitched at convenient locations around the course. The Lozier, Simplex and Stearns are at Briarcliff; the Maja and Isotta at White Plains; the Thomas and Holton at Eastview; the Panhard at Valhalla; the Apperson and Fiat between Hawthorne and Briarcliff.

The course for the race follows the main road, northeast to Pine Bridge, passing through Milwood and Kitchawan. Turning southeast it winds down to Mount Kisco, on the Harlem division of the New York Central, and then runs south through the Wampus lake section and Armonk, circling the Kensico reservoir at Valhalla. From Valhalla it runs directly west to Eastview and then north through Hawthorne, returning to the starting point. The start and finish of the race will be at Briarcliff, which is located on the Putnam division of the New York Central railroad, just south of Ossining. Here will be situated the official grandstand. There will be other stands, though, at Eastview and above Armonk, Valhalla, Hawthorne and Mount Kisco.



5—Picturesque Spot Near Echo Lake  
6—Stretch Near Merritt Corners  
7—Croton Reservoir, Near Pine Bridge  
8—Stretch Passing Wampus Lake

## MORE POWER FOUND IN BENZOL

**Joseph Tracy Conducts Tests with A. C. A. Dynamometer, and Claims New Fuel Demonstrates Its Superiority Over Gasoline—Mileage Trials Will Come Later**

New York, April 11—Tests of benzol as a fuel for motor cars have been conducted during the past week by Joseph Tracy, and yesterday a thorough comparative test of gasoline and benzol as fuels was made upon the new dynamometer of the Automobile Club of America which resulted in Tracy declaring he is convinced that the fuel question has been settled by the result of his benzol experiments and those made abroad. The tests yesterday were with a large Simplex roadster which was put upon the drums of the dynamometer and run first on gasoline and then on benzol for a considerable time.

The results proved, Tracy says, that the two fuels are absolutely interchangeable even without any adjustment of the carburetor, the use of benzol producing slightly better horsepower and draw-bar pull. The car was geared high and special attention was given to the results as shown on the grademeter. With gasoline it was found that power sufficient to climb a hill of 11.9 per cent grade was developed and with benzol the possible grade was shown to be 12.1 per cent. This is said to be a marked gain and as it was maintained for a considerable period it was a clear demonstration of the efficiency of benzol. With a special adjustment of the carburetor, the grademeter showed 12.2 per cent while the draw-bar pull increased to 398 pounds as opposed to 383 pounds with gasoline.

The greater pulling power at low speed developed yesterday bears out the findings of the foreign investigators. With a car geared for speed, a distinct gain in pace is believed to be probable, but no effort to test this fact was made yesterday. Neither was the test conducted to find out details of quantity of fuel consumed. These latter points will form the subject of mileage tests which Tracy announces he will conduct during the present spring and summer.

Benzol consists of a mixture of benzine, toluene and xylene and has a specific gravity of 885 degrees. It commences to distil at about 176 degrees and does not completely distil over until nearly 248 degrees Fahrenheit is reached. Its calorific value is about 20,000 B. T. U. and it contains about 8 per cent hydrogen and 92 per cent carbon. Benzol is produced as a by-product in the manufacture of coal gas, and is water-white in color.

For use in motor car engines but little change need be made in the carburetor as benzol gasifies almost as readily as gasoline. As it is much more powerful than gasoline, a motor running with it requires a much smaller amount and the carburetor must be adjusted to feed but a small bit

for each explosion. Benzol having a higher specific gravity than gasoline, it is also necessary to readjust the float and needle valve of the carburetor after using gasoline. The explanation for this is simple. By reason of the greater density of benzol the float will be carried to a higher level than when gasoline is used, and the needle valve will be closed before the benzol rises to the level to which gasoline would rise under the same circumstances.

In England a number of satisfactory tests of benzol applied to gas engines have been made by S. F. Edge and others, while Tracy has been conducting benzol experiments for a year or more in America. These tests prove benzol produced a much stronger explosive than gasoline, consequently a much smaller amount of fuel is needed for a given mileage. Recently a 40-horsepower Napier touring car with four passengers completed a 3,000-mile test using benzol. The car was run about 150 miles each day, and it was noted that the specific gravity of benzol would vary, depending on atmospheric conditions, from 855 degrees to 880 degrees. At the beginning of each day's run the specific gravity was about 877 degrees; at the end of the day's run the specific gravity was found to be 865 degrees. This was no doubt due to the fact that the temperature of the fuel had been raised by the heat from the exhaust pressure. In this test run the average amount of benzol used was about 7½ gallons per day, or 23 miles per gallon of fuel.

Some experiments in the fuel line were conducted last November in England by S. F. Edge, who tried alcohol in a standard 40-horsepower six-cylinder Napier engine. The alcohol in question was 90 per cent alcohol spirit. With the alcohol only, the engine was difficult to start, so benzol was added to the alcohol until they were about in equal proportions, when it was found the engine started up well. Experiments were then carried out to see how small a percentage of benzol would enable the engine to start up freely. With two parts of alcohol and one part of benzol the engine was difficult to start although warm, but when once started up, it ran quite well on these proportions; the exhaust was much purer, too, than when half benzol was used. A further experiment was made with three parts of alcohol and one part of benzol. There was considerable difficulty in starting up with this combination, but after starting, the engine ran very sweetly indeed. The next day with everything quite cold, a mixture of two parts of alcohol and one part of benzol was tried, but the engine would not start up; equal parts of benzol and alcohol then were tried, but

there was still great difficulty in starting. Finally the engine was started by introducing a few drops of gasoline into each of the cylinders. The car then was taken for a run with five parts of alcohol and four parts of benzol, and this appeared to be about the correct mixture when running the car in traffic slowly so as not to have any risk of the engine stopping. Even with these proportions, however, the engine did not pick up perfectly until the parts got warm, when the engine ran correctly.

As regards power, there was no definite bench test made as to this, but it did not appear that it was quite as powerful as gasoline. Probably a higher compression might have been used in the engine with this particular spirit with advantage, as the explosion with the alcohol did not appear to be so sudden but of a gentler nature, but certainly the engine ran very quietly and sweetly indeed. The specific gravity of the alcohol used was .83 at 15.6 centigrade; the specific gravity of the benzol used was .875 at 15 centigrade.

### STARTS THE IDEAL ROAD

Cleveland, O., April 13—The contractors for the building of the section of model road for the Cleveland Automobile Club have established a camp near the village of Euclid and are making active progress in the construction work. Stone for the base has been prepared. In place of crowning the road in the center it has been decided to slope the road towards the north, as the pike lies along a ridge with the drainage in the direction mentioned. This point was decided this week at a conference between the contractors, the local authorities and the officers of the club. This stretch near Euclid is the worst of the entire route from Cleveland to Erie and it has long been a terror to tourists. The Cleveland club has received inquiries from all portions of the country as to the building of this road, and it has been highly complimented for its energy in undertaking such an expensive piece of work.

### NOVEL TEST IS SUCCESSFUL

Cleveland, O., April 13—An interesting reliability test was completed on Saturday by Harry S. Moore, agent for the Stoddard-Dayton in Cleveland. Moore made 100 miles per day for 10 successive days, and he invited anyone interested to make a trip and witness the action of the car. The car was a model F 1908 40-45-horsepower Stoddard-Dayton. Starting on April 2, all adjustments of carburetor, spark plugs, differential, water pump and engine were sealed by C. J. Forbes, secretary of the Cleveland Automobile Club, and each morning and evening they were inspected by Mr. Forbes. Each day the car carried three passengers—different people each day—who were instructed as to rules regarding making of adjustments. No penalties were exacted for starting and stopping the engine, but records were kept

of the consumption of gasoline. The route selected was the Cleveland-Geneva century course, which includes all kinds of roads sandy in many places, and including several very stiff grades. The entire demonstration was made without a seal being broken and without marring incidents of any kind beyond one slight case of tire trouble. Without attempting to make high speed, the centuries on 8 days were covered at an average of 4 hours 20 minutes, while on 2 days the time was extended to 5 hours 30 minutes by rain and heavy roads. At all times on hills it was possible to make the climb on high gear. The average consumption of gasoline throughout the test was 8½ gallons per day. Goodrich detachable tires were used and there were no punctures.

#### BIG BUSINESS AT PITTSBURG

Pittsburg, Pa., April 13—The second show given under the auspices of the Pittsburgh Automobile Dealers' Association closed in a blaze of glory at Duquesne garden Saturday night. In point of attendance, actual business done and general interest aroused, it far exceeded the first show. More than \$300,000 worth of cars was sold during the show week by Pittsburg firms. The sales of accessories were especially large and dozens of new agencies were established throughout the states with the country dealers who thronged to the show. The big closing feature of the show was the start of the Pittsburgh-Philadelphia race between the Maxwell and Reo cars, which was made from the garden Saturday afternoon in the presence of 1,000 enthusiasts. J. G. Emmerling was at the wheel of the Maxwell and with him in the car were C. W. Kelsey, driver, and Hart W. Gates, an observer for the Reo people. A. L. Seeley presided at the wheel of the Reo, his companions being O. J. Bragney and E. H. Gager, the last named on guard for the Maxwell manufacturers. The contest is for \$1,000 sweepstakes and grew out of a challenge made by the Maxwell people for a non-motor stop run for a trophy cup to be offered by them. The car that touches at the Bellevue-Stratford in Philadelphia and gets back to the Hotel Schenley in Pittsburg first wins.

#### ENGLAND GETS BIG ENTRY

London, April 4—Entries for the Royal Automobile Club's 2,000-mile international touring car trial closed at ordinary fees on March 31 with fifty-one cars entered as follows: Humber, four; Panhard, Zedel and Ariel, three each; de Dion, Adler, White, Star, de Luca-Daimler, Belsize, Clement-Talbot, Gilman-Coatalen, Deasy, Napier, Daimler and Rolls-Royce, two each; Cadillac, Singer, Straker-Squire, Shamrock, Vauxhall, Brown Junior, Nagant-Hobson, Minerva, Thornycroft, Armstrong-Whitworth, de Dietrich, Sheffield-Simplex, Mercedes and Benz, one each. England has entered twenty-nine cars.

## HILL CARD FRAMED UP

### Chicago Motor Club Announces Program and Rules for the Climb at Algonquin

Chicago, April 11—Chicago is so accustomed to setting the pace in the way of framing up original motor competitions that the townspeople are not at all surprised by the originality shown in the program arranged for the third annual hill-climb at Algonquin, Ill., drafted by the Chicago Motor Club, which were announced this week. In the first place Chicago is the only promoting city in the country to hold a double climb, one from a standing start in the morning and the other from a flying start in the afternoon, two hills being used, but both figuring in the final reckoning. It was the first to adopt the handicap formula which has proven so successful and all the way through it has shown originality far above the ordinary.

The fundamental principles of the previous climbs are retained in the rules which were announced this week, but the technical committee, which is responsible for the conditions, has broadened the scheme until now it looks to be as near ideal as it is possible to arrange climbs. The handicap formula will be retained and there will be four classes in this division, classified according to piston displacement. Then there are four other events which are free-for-alls in which straight time will be the deciding factor, this part of the program being arranged to meet the demand of some of the dealers who assert the public cannot understand the handicap formula. Then there is a segregation of motor buggies which are put in a class by themselves, while the amateur driver will be given a chance to show his ability in two events, one a handicap and the other a free-for-all. The motor club has adopted the A. A. A. definition of an amateur and will see that no wolf in sheep's clothing creeps in. Another feature of the card is a team competition. This will not be separate, however, the three cars of one make with the best percentage showing being declared the winner.

The handicap formula which will decide the winners in those events consists of multiplying the cylinder capacity of the motor by the time in seconds, this result being divided by the weight of the car with driver, the winner being the one with the lowest percentage. The date selected is May 15 and Algonquin again will be the battle ground, it being the intention to use Perry hill in the morning for the standing start effort and Phillips hill in the afternoon for the flying start trials. The entry fee is set at \$30 in all but the amateur events, for which \$20 is charged, but the club will rebate half the fee in case of starting in both the climbs.

It has been decided that touring cars

must carry four adults of an average weight of 132 pounds, while the roadsters, which carry two, will be penalized 264 pounds in the handicap formula to make up for the deficiency. The full card is as follows:

#### DIVISION 1

Class A—Open to motor buggies with wheels 36 inches or over and fitted with solid tires.

Class B—Touring cars or roadsters of piston area under 50 square inches.

Class C—Touring cars or roadsters of piston area over 50 and under 65 square inches.

Class D—Touring cars or roadsters of piston area over 65 and under 90 square inches.

Class E—Touring cars or roadsters of piston area over 90 square inches.

#### DIVISION 2, FREE FOR ALL

Class F—Stripped chassis, roadster, baby tonneau or racing cars of piston area 90 inches or over.

Class G—Touring cars, five or seven passengers, of piston area 90 square inches or over.

Class H—Two, three or four-passenger roadsters, stripped chassis or racing cars of piston area under 90 square inches.

Class I—Five or seven-passenger touring cars of piston area under 90 square inches.

#### DIVISION 3, AMATEUR EVENTS

Class J—Western amateur handicap championship for four or six-cylinder cars, the winner to be determined by club formula.

Class K—Amateur free-for-all, touring cars or roadsters of any power.

#### DIVISION 4, TEAM COMPETITION

Class L—For teams of three cars of the same make having the best average performance by club formula.

## DENVER PLEASED WITH SHOW

Denver, Colo., April 9—The recent 3 days' show has exceeded the expectations of Denverites in proportions and of the dealers in results. The latter report a total of 150 cars sold during the show. The total attendance the 2 days and 3 nights was 8,000. Fifty per cent of the revenue this year will go to the dealers, for they stood back of the show, which was managed for them by G. A. Wahlgreen. The only unpleasant feature was that the hall, although having a ground floor space 90 by 200 feet, was not large enough to comfortably accommodate the great crowds or to permit the exhibitors to make as extensive exhibits as desired. Next year there will be plenty of space, for then the show will be held in the new municipal auditorium now under construction, covering half a city block. So crowded were the quarters that a side room, intended to be used as a refreshment room, was given up for the display of the Denver Omnibus and Cab Co.'s line, Detroit electrics and Corbin gasoline motor cars. This year's exhibition included ninety-three complete motor cars and trucks, ranging in value from \$500 to \$6,500; four chassis, three motors, nineteen motor cycles and full lines of tires and accessories. The value of the motor car exhibit alone was \$254,000.

## PARADE ON SUBWAY DAY

Jamaica, N. Y., April 13—Jamaica is to make a motor parade a part of its celebration of the opening of the subway on June 4, 5 and 6. It is proposed to hold the parade at night, to choose a king and queen, and to have a decorative division. A "rose section," in which the paraders will be solely women, their cars being decorated with roses, is to be made a special feature.

## ALASKA TRIP GIVEN UP

### New York Paris Cars Will Sail From Seattle to Vladivostok —Race Will Be Resumed

Chicago, Ill., April 14—The past week has put an entirely different aspect on the New York-Paris race and today no one knows positively what will be done. The Thomas crew has tackled the Alaska proposition, found it is impossible to drive from Valdez to Nome, has turned its back on that country and is hastening back to Seattle. St. Chaffray and Koeppen are in Seattle, having gone there by train, while the de Dion and Zust cars are on the boat headed for Seattle. The German Protos is in Utah, waiting for Koeppen to return with a new cylinder.

The abandonment of the Alaska trip by the Thomas has upset all calculations. The Americans propose to return to Seattle, then ship to Vladivostok and run through Siberia as originally planned. The Germans and Italians want to do the same thing, but St. Chaffray is obstinate and declares he will try to take the de Dion through Alaska by the Skaguay road. The whole matter will be settled, though, when the Thomas crew reaches Seattle, when a meeting of the contestants will be held and a route selected, the committee in charge of the race having agreed to change the course if Alaska proved impassable. The Vladivostok idea is endorsed, so it is probable this step will be decided upon.

Even if St. Chaffray persists in his Alaska idea, it is almost certain the other three cars will go to Vladivostok. This brings to light the sportsmanlike conduct of the Italians. A boat sails from Seattle tomorrow which would land the Zust in Japan, from where it could easily run to Vladivostok and in this manner it could get a big lead over the Thomas, which cannot reach Seattle before Friday. But the Italians say they are in a compact to stay with the others the rest of the way, so they will remain in Seattle 12 days more before sailing. It is expected all the cars will be loaded on the steamer Quite which sails from Puget sound April 25.

It has been generally supposed that the Thomas loses its big lead by turning back from Alaska, but now it develops there is an agreement by which the Thomas will receive in Siberia an allowance of time equal to the advantage it had in arriving at San Francisco, which means it will have 9 days more time in which to reach Paris after the race is resumed at Vladivostok. Also there is another agreement which obligates the Zust going as far in Alaska as the Thomas, but this will not be insisted upon now the Zust has decided to wait for the Thomas.

Schuster, in charge of the Thomas car, discovered last Friday that the Alaskan trail was impassable. The Thomas reached Valdez last Wednesday and Schuster and

his mates lost no time learning the lay of the land. Receiving a hearty welcome at Valdez, the Americans soon were told it would be impossible to make the trip through Alaska. But Schuster wanted to see for himself, so he secured a sledge and drove 10 miles out over the trail he was expected to follow. It did not take him long to discover the Alaskans had told the truth. At its widest point the trail was only 45 inches across, while the Thomas tread is 56 inches. Then there were places not wide enough for a horse to walk without taking chances. Stepping off the trail meant possible death, for man or beast would sink in the slush. Schuster also found the thaw had struck Alaska extraordinarily early and that the snow was melting rapidly.

These discouraging conditions caused Schuster to determine to return to Seattle. Luckily there was a boat leaving that day, so the American car was hastily reloaded and the Yankees doubled back over their trail, determined to make for Vladivostok, from which point they could resume the race to Paris.

The Protos is in Kelton, Utah, where it awaits parts with which to make repairs. Koeppen had to go to Seattle by train in order to get these parts.

### WINTONS ARE ONE. TWO

Philadelphia, Pa., April 13—Twenty-nine cars started in the roadability run of the Quaker City Motor Club to Cape May last Saturday afternoon, and Wintons captured two of the three prizes, first going to F. M. Johnson, who was awarded the massive \$500 Hotel Cape May cup, and third to A. E. Maltby. Dr. E. M. Lengle, in his Matheson, captured the place. The official time, decided upon secretly by the contest committee, was 5 hours 54 minutes 18 seconds. Johnson, wonderful to relate, consumed that amount of time almost to a dot. Lengle and Maltby were, respectively, 25 and 26 minutes ahead of the schedule. The variations therefrom were wide—some of them almost too wide to warrant publication, not a few of the cars doing the 92 miles close to 3 hours, which means a 30-mile gait in a country where the legal limit is but 20. The number of cars which finished behind the winner could be expressed by a single figure, and one of the smallest ones at that. Beginning promptly at noon, the contestants were sent away from the Hotel Walton at 1-minute intervals. Counting official and non-competing cars more than two-score vehicles were in line. Each contestant was handed a sealed envelope containing the time required to be made. Any tampering with the seal meant disqualification, as did a hold-up by officials for overspeeding. The presentation of the prizes in the evening by Mayor Fred J. Melvin, of Cape May, was made a feature of the ceremonies held in connection with the opening of the mammoth million-dollar Hotel Cape May.

## HOYT TALKS TO A. C. A.

### Retiring President Apparently Believes Club Is Mightier Than A. C. A.—Suggestions Offered

New York, April 14—Special telegram—In his report at the annual meeting of the Automobile Club of America Colgate Hoyt, the retiring president, called attention to the fact that he still is of the belief that the A. C. A. and apparently not the American Automobile Association with its 200 clubs should be the national organization of the country. The manufacturers of motor cars are told by Mr. Hoyt that they are now sufficiently strong to conduct their own shows, "without our support or assistance and that the club should now retire from the field." Attention is called to the successful good roads and good laws conference held by the A. A. A. clubs at Springfield, Mass., last September, and which will be repeated in a national manner at Buffalo on the 2 days preceding the start of the annual A. A. A. tour for the Glidden and Hower trophies. Mr. Hoyt recommends that the A. C. A. organize such a congress, seeming to consider the Buffalo affair will not be sufficient to answer the needs of the situation.

Mr. Hoyt also recommends that there "be held this spring or summer an international touring car trial somewhat on the lines of the trial to be held by the Royal Automobile Club of Great Britain to provide an exhaustive test of touring cars, each car being given a definite rating under a standard formula without an exhaustive tire test be held in connection with such trial." Reference is made to the fostering of inter-club relationship, and the statement is made that an agreement has been reached with the Massachusetts Automobile Club. It is a well-known fact that the A. A. A. clubs throughout the country now have an existing understanding concerning reciprocal courtesies, though Mr. Hoyt ignores this fact.

The statement is made that the A. C. A. declined to endorse the federal registration bill of the A. A. A. on the ground it is unconstitutional in its provisions. Mr. Hoyt calls attention to the rejection (?) of the bill by the judiciary committee of the house of representatives, though Chairman Jenkins the other day publicly stated his committee had yet to reach a decision and agree upon a report. Mr. Hoyt mentions the activities of A. R. Shattuck in good roads matters. Mr. Niles, chairman of the law committee, is complimented upon his success in compromising and finally relieving the club from further liability in the damage suits resulting from the races held on Staten Island in 1902.

The total cost of the new clubhouse is placed at about \$800,000, the total mortgage obligations of which is now \$610,000; \$40,000 of the second mortgage bonds having been canceled during the past year.

with the club's showing profits from initiation fees, from new members and fees from life memberships. The present active membership is 1,223, with thirty life members and 287 associate members. The net gain in membership during the year was 291. Under an amendment to the constitution the second and third vice-presidents are added to the board of governors, which has entire control of the affairs of the club. The annual election was held at the same time and as there was only one ticket in the field, that being headed by Judge Gary, it went through.

#### ACCEPTS THOMPSON CUP

New York, April 13—Prompt action was taken by the executive committee of the National Association of Automobile Manufacturers at its meeting last week—April 8—upon the report of S. D. Waldon, one of its delegates to the meeting of the A. A. A. central conference committee the previous day on the matter of trade support to the American Automobile Association in its promotion of national contests of various kinds. The members present voted unanimously in favor of accepting Jefferson de Mont Thompson's offer of a \$3,000 cup for a permanent stock car race trophy by way of a prize for an annual international contest. The N. A. A. M. board also confirmed the pledges of its delegate to back up the A. A. A. in its withholding and granting of sanctions and to support exclusively as national competitions the three great annual promotions of the national organization—the annual reliability touring contest, the Vanderbilt cup race for racing machines, and the proposed annual event for stock car chassis. It practically is assured that the American Motor Car Manufacturers' Association at its next meeting of the committee of management will take similar action in conforming the pledges of its delegates to the central conference committee meeting. At the N. A. A. M. an appropriation of \$500 was made toward entertaining the delegates to the good roads and good laws convention at Buffalo, which is to precede the start of the annual reliability tour of the American Automobile Association on July 9.

#### CUP FIELD NUMBERED

##### Contestants in Briarcliff Trophy Race Draw for Positions—Accidents on Course

New York, April 15—Special telegram—The drawing for the order of start in the Briarcliff race took place yesterday afternoon at the committee headquarters in the Bryant Park building. By way of preliminary to the drawing, Robert Lee Morrell, the chairman, outlined a scheme of drawing following the method employed in drawing the positions of the members of the various national teams in the Vanderbilt cup race, the different makes being given recognition as teams. His idea was that the makes should be separated, to do away with possible team work. This plan would have divided the entrants practically into three divisions.

C. F. Wyckoff, of Wyckoff, Church & Partridge, was on his feet in an instant with a protest, pointing out the fact that this arrangement would insure one Stearns and one Isotta being at the tail end of the procession. At once representatives of other makes were adding their protests and calling for a free-for-all drawing. The chairman retreated from his position and put the question to vote. The single entries, of course, all liked the Morrell plan, as it would insure them a place in the first fourteen, and the multiple entries just as naturally preferred to take their chances in a general drawing.

The Morrell plan was voted down and a free-for-all drawing substituted by a vote of 11 to 8, Mr. LaCroix declaring he had no preference and was not voting. Bergdoll, the Benz entrant, was absent. It was subsequently agreed, however, that should two makes be brought together in line, the second one should be moved down a place. There was a preliminary drawing for the order of drawing, and then came the final drawing, which resulted as follows: 1, Bianchi; 2, Fiat; 3, Apperson; 4, Isotta; 5, Stearns, Leland; 6, Fiat; 7, Lozier, Michener; 8, Stearns, Vaughan; 9, Lozier, Mulford; 10, Maja; 11, Isotta, Poole; 12,

Thomas; 13, Stearns, Oldfield; 14, Renault, Bernin; 15, Panhard; 16, Hol-Tan-Shawmut; 17, Allen-Kingston; 18, Renault, Bloch; 19, Isotta, Harding; 20, Benz; 21, Simplex, Seymour; 22, Simplex, Watson.

The two Simplex cars having drawn positions together at the end a question arose as to what was to be done. The suggestion that one of them be moved to the head of the line was not received with favor and the two were with universal consent left in *statu quo* at the tail end.

Candidates who are entered in the Briarcliff cup race which will be run a week from Friday are for the most part prudently confining their preliminary practice to a study of the difficulties of the route in touring cars. So bad has been the roadway in places that drivers actually have taken to the ditches to avoid the bad spots. The early crop of practice disasters has been quite large already. Two were reported to have occurred on Sunday morning. Joseph Seymour, a member of the Simplex team, in rounding a sharp turn near Mount Kisco, ran into a stone wall, throwing out Seymour and his three companions, R. C. Watson, another Simplex driver, and Phil Fehr and Thomas Corder, mechanics. The front wheels of the car were badly bent. The same morning David Murphy was putting through its best paces the Maja, entered by Mayor J. J. Brown, of White Plains, when the car struck a small stone, skidded and was half overturned in the ditch. Murphy's arm was badly cut and the steering rod of the car was broken and its frame bent. On Saturday Montague Roberts, while taking a sharp turn in a Thomas Flyer runabout, skidded off the road so sharply he and his mechanic were thrown out.

The Hol-Tan company has made an eleventh-hour substitution of a Shawmut for its Hol-Tan. W. M. Hilliard, who will pilot it in the race, drove it down from Boston on Sunday, making the 250 miles over bad roads in 10 hours. The Shawmut is quite a well known Boston product, having been manufactured by a company at whose head is Elliott C. Lee, former president of the A. A. A.

#### DETAILS OF THE CARS THAT WILL COMPETE FOR BRIARCLIFF HONORS IN WESTCHESTER COUNTY, N. Y.

No.	Car	Entrant	Driver	Cyls.	Piston Dis.	H.P.	Ignition	Clutch	Drive	Tires
1—Bianchi		Percy Owen, Inc.	Felix Prossen	4	82.48	40	Bosch L.T.	Disk	Chain	Michelin
2—Fiat		Fiat Co.	E. H. Parker	4	95.0336	60	Bosch L.T.	Disk	Chain	Continental
3—Apperson		S. B. Bowman	Herbert Lytle	4	103.86	50	Bosch H.T.	Con. Bd.	Chain	Not decided
4—Isotta		J. H. Tyson	Louis Strang	4	102.38	50	Eisemann H.T.	Disk	Chain	Michelin
5—Stearns		F. B. Stearns	Frank Leland	4	90.72	30-60	Bosch H.T.	Cone	Chain	Not decided
6—Fiat		Fiat Co.	Emanuel Cedrino	4	95.0336	60	Bosch L.T.	Disk	Chain	Continental
7—Lozier		Lozier Co.	Henry Michener	4	86.59035	45	Bosch H.T.	Disk	Shaft	Diamond
8—Stearns		W. C. & P.	Guy Vaughan	4	90.7286	30-60	Bosch H.T.	Cone	Chain	Not decided
9—Lozier		Lozier Co.	Ralph Mulford	4	86.59035	45	Bosch H.T.	Disk	Shaft	Diamond
10—Maja		J. J. Brown	D. D. Murphy	4	58.92	35-40	Bosch L.T.	Disk	Chain	Continental
11—Isotta		Isotta Co.	Al Poole	4	102.38	50	Eisemann H.T.	Disk	Chain	Michelin
12—Thomas		Harry S. Hourt	M. Roberts	4	95.034	60	Bosch H.T.	Disk	Chain	Diamond
13—Stearns		W. C. & P.	Barney Oldfield	4	90.7286	30-60	Bosch H.T.	Cone	Chain	Not decided
14—Renault		Paul Lacroix	M. G. Bernin	4	86.59035	35-45	Bosch H.T.	Cone	Shaft	Michelin
15—Panhard		Panhard & Levassor	George Robertson	4	103.864	50	Eisemann H.T.	Disk	Chain	Continental
16—Hol-Tan-Shawmut		Hol-Tan Co.	W. M. Hilliard	4	72.38	35	Bosch H.T.	Disk	Shaft	Continental
17—Allen-Kingston		W. C. Allen	Arthur Campbell	4	78.54	40-45	Bosch H.T.	Disk	Shaft	Michelin
18—Renault		Paul Lacroix	Julian Bloch	4	86.59035	35-45	Bosch H.T.	Cone	Shaft	Michelin
19—Isotta		Isotta Co.	H. J. Harding	4	102.38	50	Eisemann H.T.	Disk	Chain	Michelin
20—Benz		L. J. Bergdoll	L. J. Bergdoll	4	103.	80	Bosch H.T.	Chain	Diamond	
21—Simplex		Palmer & Singer	Joseph Seymour	4	103.884	50	Bosch H.T.	Disk	Chain	Continental
22—Simplex		Palmer & Singer	R. C. Watson	4	103.884	50	Bosch H.T.	Disk	Chain	Continental

## MANUFACTURING PROGRESS IN DETROIT

DETROIT, MICH., April 13—Motor Age being desirous of ferreting out all the newest things on the tapis for the season as well as the novelties in the way of tried and proved principles in which the makers are more particularly interested, I made it a point to call early at the Aerocar company plant, as I had learned this concern intended to market a new model at a popular price. I found considerable activity in the various departments and learned that C. A. Benjamin was in Los Angeles, pushing the Aerocar line on the coast. From reports gathered a good season was expected from the far west.

This year the Aerocar people will bring forth an entirely new model of slightly smaller type at a price that should be an attractive one to both the

agent and the moderate-priced customer. This newcomer will be known as model E and will be water-cooled. The design of the car is nifty, and the body construction is of a triple combination type, being transformable into a two-seated, baggage-carrying runabout, or a four double-bucket-seated tourabout. In the illustration of this neat appearing combination car it will be noticed the general design shows a good balance. It also will be seen by noting the illustration of the single rear seat that the various changes are made quickly, and without leaving that unfinished look such as often is found in detachable rear seats. This little car is fitted with a Continental engine, and the chassis contains long springs, racy fenders, and full equipment.

The policy of the Aerocar company to supply either air or water-cooled engines as in former models will still be adhered to. These models also have been drawn down to finer lines, and the various refinements which the Aerocar people have put into them make them more attractive than heretofore. As this concern also is of the opinion that the time is ripe for a cheaper car it has sprung a surprise on the motoring world by listing these 4 by 4-inch air and water-cooled models at a considerable reduction, considering the class of articles made. Those who have wanted a good touring car of medium power at a medium price are certainly benefited by this tendency to market a smaller and lower priced car. If this is a criterion of the values to be offered the small town agent will be very much benefited.

A larger 40-horsepower model is also going through the factory. This model,

**EDITOR'S NOTE**—This is the first of a series of articles on Progress in Motor Car Factories, by Berne Nadali, special correspondent for Motor Age and Automobile.

designed by Mr. Melinowski, late of the Dragon and other firms, appears to be of good workmanship, and has ample power, but Advertising Manager Campbell declares the season for large cars will be

thrown out almost in line with the radiator. The executive staff of this concern is made up of young men, from Mr. Chapin, who has only recently returned from the western coast, where he claimed to have found good picking, down to the front door guardian seems to be well suited to meet the various requirements. Also the congenial works manager, Mr. Brady, was

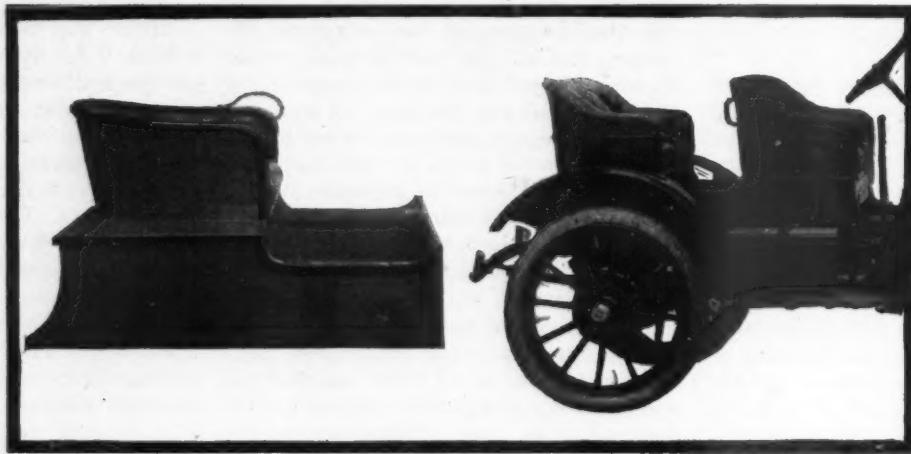
found at his desk filling in the morning orders for Thomas-Detroit in green ink.

While the Irishman's mode of how to be happy and be busy at the same time was apparent here, it does not follow in this case that the Thomas-Detroit institution is one of lax methods—quite the reverse. One thing that is particularly noticeable is the exceedingly busy look

of the modern establishment. Machinery is humming, packing cases are being opened, trolleys are fitting about everywhere and the place looks well set for a prosperous year.

When asked what particular feature of the car was his greatest delight, Mr. Brady replied, "the car itself." To judge it as a whole was his wish, and the remark became more forcible as more of the factory was visited. I found the car had no frills and was what one might call a common-sense engineer's job—a well balanced proposition.

One of the points that appealed as worthy of mention, however, is the oiling system of the engine. The system is not new, but the Thomas-Detroit people have made it quite successful by the application of a well-designed pump and sight feed. The pump is integral with the engine and is of the gear-driven type. It is placed on the bottom piece of the crankcase, and pumps from a duct in the bottom of same up through the dash sight feed, thence by outside leads to the three main bearings of the crankshaft. This is following the best European practice as it gives a constant crankcase level as well as a splash feed; but the sight gauge seemed a decided improvement in that it forms a sort of visible tell-tale at all times of any obstruction in the flow of oil. As shown in an illustration, the complete system, with the leads to and from the pump and crankcase through the gauge, is compact. In another illustration the gauge itself is shown, with the pump pipe ending in a goose-neck shape in the glass gauge. It will be obvious to one that as the pump lifts the oil up to and through the gauge

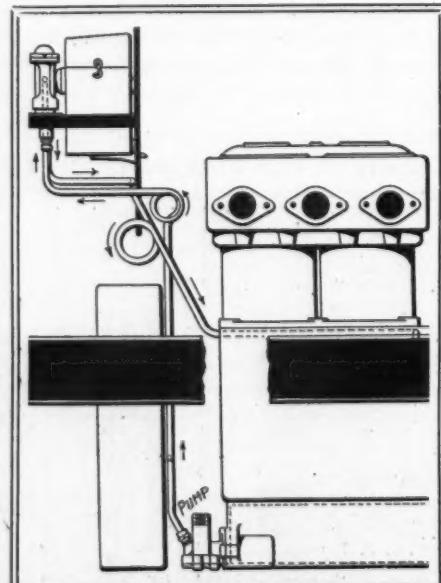


AEROCAR, MODEL E, WITH COMBINATION BODY

an off one, and the company therefore would not now place this model on the market. As he termed it, the motor industry has its off seasons like other branches of the commercial world, which, he said, is a repetition of nature—as the apple tree does not bear good and sound fruit each season.

### Thomas-Detroit Features

Of the several new products which are finding a good market few are more appealing than the 1908 Thomas-Detroit. This car, with its numerous refinements, is very much like a French production. The design closely follows the lines of the best continental practice in every detail, even to the position of the front axle, which is



THOMAS-DETROIT LUBRICATING SYSTEM

any debris that may perchance find its way into the leads will cause the sight gauge to fill up beyond the neck of the pipe as the pressure from the pump always is there; and unless free and continuous flow of oil is obtained the gauge must fill, which at once tells the driver something is wrong and needs attention. Usually there is nothing but a thin pipe with a glass tube inserted in it, or a drip arrangement which is, as a rule, so oily one cannot detect such discrepancies at a glance. In filling the case with oil the method of determining the quantity put in is by two pet-taps at different heights in the crank-case. If oil runs out of the highest tap the case is full. The Thomas-Detroit people claim 500 miles can be run on one filling of this motor oiling system.

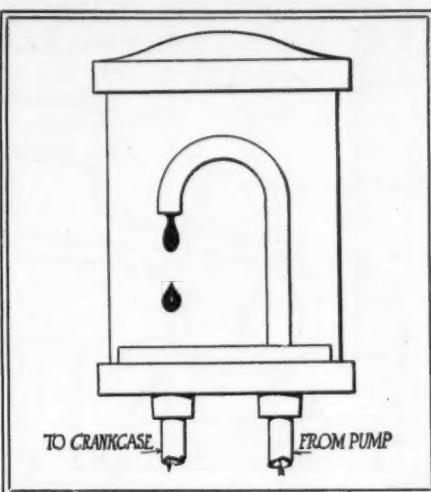
As in all parts of the Thomas-Detroit, the gears are put through a rigid test to secure perfect working in every car sent out. Road tests of cars, even 200 or 300 miles, will not always secure the loosening up of stiff gear parts. While the engine generally is worked out, in many cases the gears or the gear levers will still show newness, or stiff action. The Thomas-Detroit gear test is equal in every respect to the engine test or I might say sufficient for the demand. The gear-set is of the Brown-Lipe pattern.

#### A Good Underpan

Another point which deserves mentioning is the fine underpan, which is fitted. An underpan does not seem to be of much importance and often is considered a great nuisance. It is always clumsy, ugly and hard to take down. In the case of the Thomas-Detroit pan, the design has been studied with the same care that characterizes the running parts; in fact, I found this condition to prevail in numerous parts which are considered of minor importance by some of the makers. Detaching or attaching of the pan can be effected without the use of tools within 2 or 3 minutes.

In the first place the design is part of the design of the car frame itself, the sub-frame having grooves to take the swaged edge of the pan, which is slid into place from a point under the gearbox forward to the front of the car, making a dust-proof fit. In addition to the grooves supporting the pan, six spring clips or hooks are sprung into holes made for the purpose. The whole pan, which is semi-cylindrical, is 24 inches across, thereby taking up very little room under the car, and at the same time being almost unnoticeable.

The spring suspension is ample. It is a noticeable fact that this part of the American motor car has shown such im-



THOMAS-DETROIT TELL-TALE OIL CUP

provement within the last 2 years that today it can claim to be the leader in this respect. The exemplification of this fact never was made plainer than when the foreigners recently commenced to traverse this continent in the New York-to-Paris tour. I also can include the frames, and other parts of the chassis of American-built cars, which no longer are a trouble, notwithstanding the almost impossible road conditions. A glance at the illustration, which also gives a view of the underpan, shows the long wide springs fitted to the Thomas-Detroit cars.

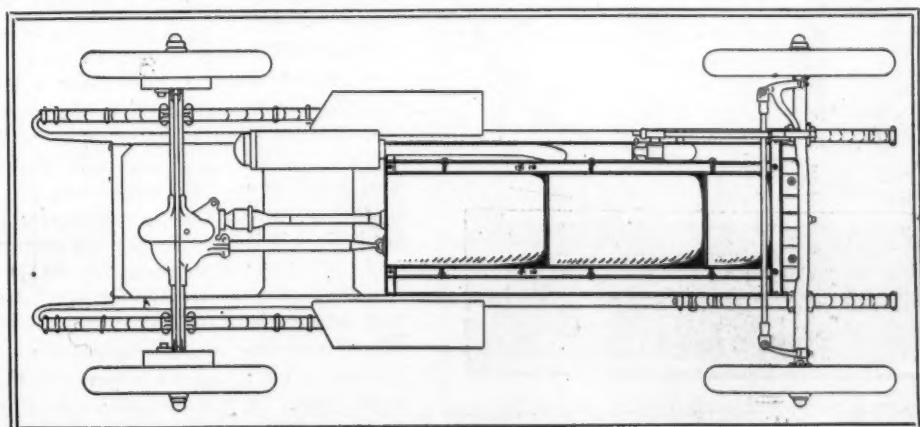
Numerous other interesting data could be given of this new proposition, but as I am dealing only with special matters space limits me. However, it is worthy of note to point out advantages shown in the use of large ball-bearings, and solid plain crankshaft bearings which usually are not considered good practice; but in the case of this firm, good design and careful assembling have been found to give every satisfaction. Also the good balance of the car enables the engine to produce a horsepower for every 60 pounds it carries in dead weight. Considering that this firm is hardly 2 years old, and that it has turned out something more than 600 cars, which are giving satisfaction in every part of the country, the achievement stands out as a credit.

There is nothing that succeeds like suc-

cess and when it is applied to actual experience it becomes the concrete fact. No prejudice can assail the product of an institution that has become successful no matter what opposite view one might make of it. It is often said that the double opposed or the one-lunger is a freak or a frost or some such expletive as ruthlessly slaughtering in its purport; but the proposition remains defensible as long as the promoters can show a return for their investment.

#### Northern Has Many Features

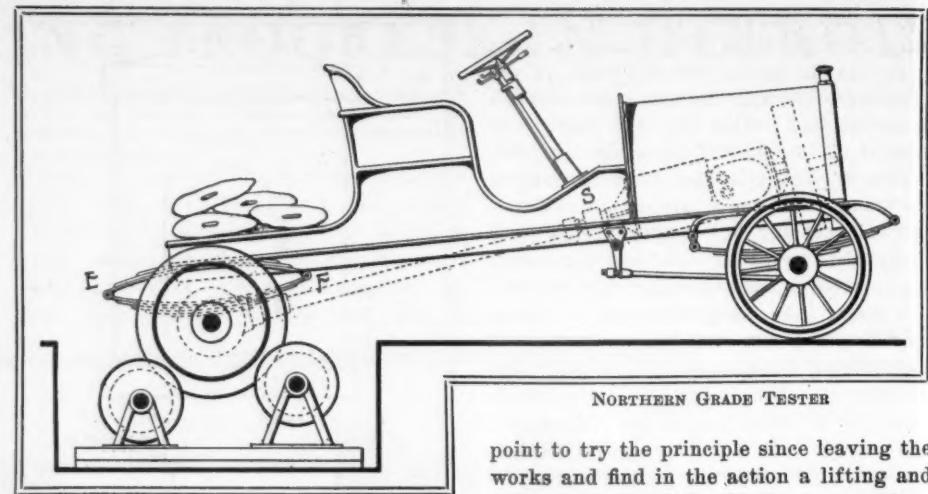
Since the day the silent Northern received its appropriate name it has steadily gained in favor. Northern cars, those of the double-opposed, two-cylinder type, are better today even than ever before. They are made in a first-class shop and made well. There are not many cars of medium price that can boast of so well equipped a shop and such a good organization as have the Northern. The main office is located in Detroit, but an equally large factory at Port Huron is under the same control. A visit through the Detroit works was sufficient to learn that this place is a solid institution and that it is a fine plant. To acquaint the reader with practices such as might interest the engineer as well as the layman buyer, it is not amiss to point out one or two advantages such as have been obtained by the above mentioned conditions. In the first place, it is plain that manager, foreman and mechanic are wholly in touch with each other. This unity of officers and men means that any leak that might otherwise occur will be detected almost at once and made right before it is too late. Also any cheaper or better way to perform a difficult piece of work would just as readily be discovered. A case in mind is one where sand-blown cylinders are transformed into first-class bright castings, by galvanization. These castings, like most castings of such a nature, were too often of the pinhole variety, or sandy, and sometimes porous—which condition was not always discovered until the casting had been machined, fitted in a car and sold. I am told that as high as 45 per cent of the castings received was sometimes rejected, much to the annoyance of the foundry and the recipient, and that it is imperative to do something to overcome the trouble. While I did not learn whose idea it was to galvanize the cylinders I found them to be clean and clear and of a close and smooth texture. The cleanliness alone seemed to compensate for the extra cost incurred galvanizing them, which is stated to be about \$1.25 each. The rejected



THOMAS-DETROIT UNDERPAN, AND SHOWING LONG SPRINGS USED

castings at the present time do not equal 2 per cent and the fact that the interior of the cylinders also is coated makes them somewhat proof against quick carbonization, the surface being more of a repelling nature than one of adhesion, which is obvious from the very nature of the rough interior of an ordinary casting, the pebbly surface holding dirt much firmer, especially gas burnt oil products. Also it is noticeable in machining that the interior of the cylinder is of such a reflected brightness that the work becomes much easier on account of being quite visible. Thus it is explained that a vital benefit is obtained by the unity of an establishment.

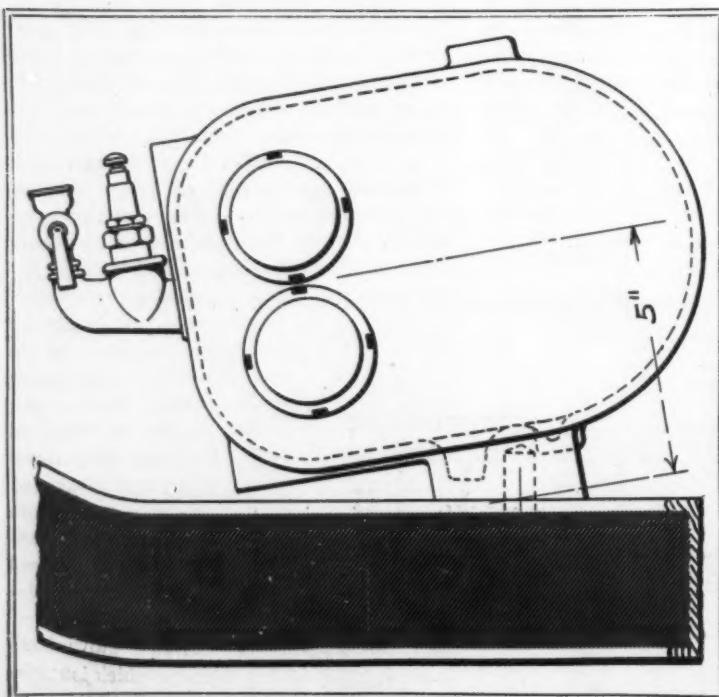
Other novel things on the car are the exhausting of the engine gases, the spring and shackle suspension, the plug position, and the absence of torsion or stay rods, also the interesting manner in which the finished cars are tested with regard to hill-climbing ability. Taking the plug position first, it will be seen in illustration how the plug is pocketed in a remote corner of the cylinder. I am told the position given the plugs in Northern double-opposed engines is one which was adopted after much experimenting on the subject. While it seems wholly contrary to all laws regarding spark plug theory, this firm advises that its plug trouble since placing it as shown has quite vanished. The soot-ing, carbonizing and oil-wetting troubles so frequent in the four-cylinder upright engines are thus eliminated by what most people term very bad practice, or, in fact, a practice I never before saw, except, I believe, some years ago when the Mercedes firm tried it for a while. This is such an interesting subject a whole book could be written on it, and I would very much like to hear from other sources on experiences gained by others, as much data could be



NORTHERN GRADE TESTER

collected that would be of general benefit to the trade. In drawing attention to the general suspension of the car one illustration, which shows the car on the roller-testing stand, gives a profile of the run-about where it is plainly seen that no torsion rods or stay supports of any kind are used. This is another instance where everyday practice has been thrown to the winds, but, from what I learn, good results accrue. Heretofore the one or two other firms I have known which have tried the torsionless chassis have eventually given way to popular sentiment—or perhaps for other reasons—and fitted such members, but this firm refrains from believing that it is necessary in the car in question, and it states it has been experimenting on such lines for a number of years. It has even followed, or perhaps originated, certain spiral spring principles which have been incorporated into the drive shaft—only to be thrown out again as no good. This spring idea, which once I saw in France, was at one time heralded as the solution of the flexible drive trébon, but it soon went the way of other such arrangements, yet the difficult problem as instituted into this car seems to work out well. The firm states it has yet to have a complaint from that source. The Northern people believe in it and claim their numerous cars now running in all parts of the country bear them out. I have made it a

point to try the principle since leaving the works and find in the action a lifting and falling of the full elliptic rear springs which are fitted to the car. While it may appear from the fact that the remark implies a defect in the spring and falling of the spring ends E and F the reverse is the case. This rising and falling in no way seems unsound no more than the deflection of a spring. In starting, which I had demonstrated by using the high gear, I saw a clear swiveling action, apparently thoroughly practical in this case, receiving the sudden application of the power to the outer periphery of the driving wheels through the springs, giving a partially retarded movement to the car. The jerk, so prone to the usual direct drive, is quite absent and it seemed quite unlikely much trouble could occur from the adoption of such a principle here. Suddenness of action does not take place and therefore any carelessness that might seemingly cause a snap somewhere appears very remote. Only one universal joint is used at the front end. The engine also is set slantwise, declining towards the rear, making the drive more direct. At the universal joint a sleeve is fitted, which practically is unlimited in its movement either forward or backward, as much as  $1\frac{1}{2}$  inches being apparent under the most sudden conditions. As one must judge by ocular demonstration, as seeing is believing, it cannot be said the practice of the Northern is wrong. The isolated position of the spark plug, the torsionless drive and the galvanized cylinders should be enough at one time to talk about, but in the case of the Northern it apparently thinks from both ends, as it were, like the burning of the candle; however, it does not believe in hiding its light under a bushel as it makes it a point to bring all prospective buyers into the works to see with their own eyes. The company also works from both ends, as Mr. Gunderson, the manager, puts it, in that it commences to assemble its chassis by fitting the monster mufflers first. As it seems correct to do it, it again is another unorthodox proceeding which is in no wise a derogatory or assailable practice. The manner adopted of exhausting the engine gases is novel in the practice of carrying it out only. It is exactly what others are slowly coming to, namely, expansion room



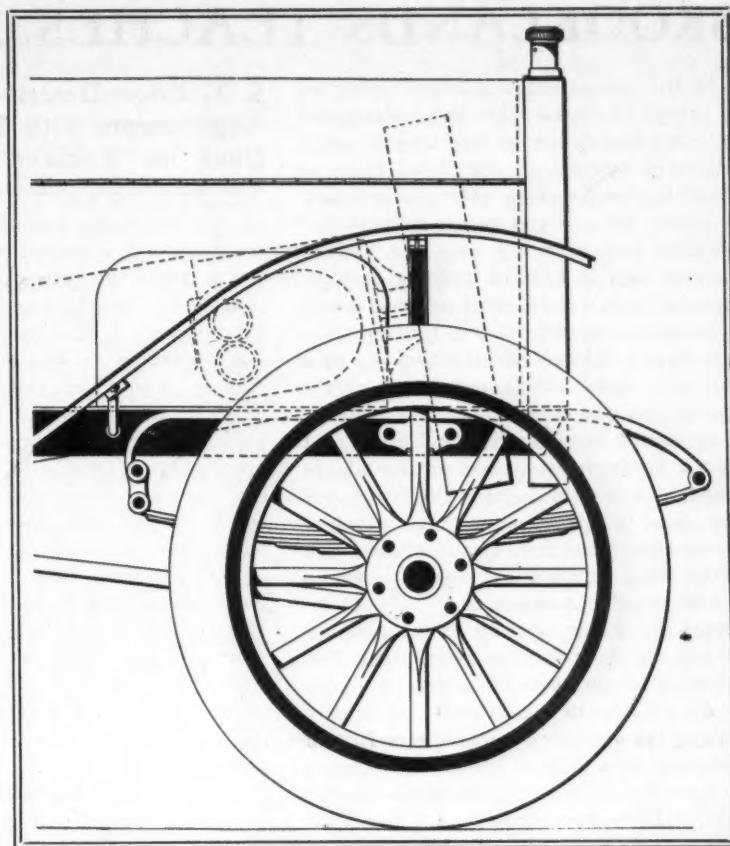
NORTHERN SPARK PLUG IN CHAMBER OUTSIDE OF CYLINDER

spread over large areas and a minimum of baffling. Look at the large four-cylinder cars of good make today and you will see a 50 per cent increase in the size of the exhaust pipes, expansion chambers or mufflers over what existed only a few years ago. Everybody knows that if they could hold the exhaust gases long enough to cool to a temperature equal to that of the outside atmosphere, when deposited into the open air there would be no sound at all. This is just what is happening everywhere now. The Oldsmobile was one of the first to give plenty of expanding area in America and that car has become known as one of good muffling. The manner of passing away the hot gases on the Northern is illustrated, the drums being what is termed the high pressure and the low pressure boxes respectively. The left box only has a perforated pipe running through its extreme length which retards the passage of the fresh hot gases enough to reduce their expansion properties to a point low enough to cause them to be quite weak, after which they are passed into the second right chamber and allowed to flow out upon the air, quite cooled and weak. It is claimed the two-cylinder horizontal engine is much harder to make quiet than the vertical engine; however, the Northern motor seems to have earned its sobriquet honestly and simply. It will be obvious to anyone that back pressure almost is reduced to nil.

Detroit is known for its motor car originality, and I have found it quite true; but it should also imply that its originality is mostly sound as I have found any variation from the regular paths to be based wholly on good engineering practice. Sometimes art or style will predominate over science, but not so marked here. Take, for instance, the French custom of hanging the spring shackles, which is followed the world over. It may be right to design that little shackle to hang obliquely always. It looks as if it need not be so, but the whole world seems to have followed the French. And perhaps the French only copied it from the landau of German origin or the caliche which we Americans can see by taking a little trip to the town of Quebec in Canada where they are the favorite horse-drawn vehicle today. One illustration shows the style the Northern has adopted. The company points out the reason for such a change and the feasibility of it seems apparent. It is a fact that an obliquely hung shackle will only allow of a spring rebound equal to the tension in the spring. A quick drop into a hole and a

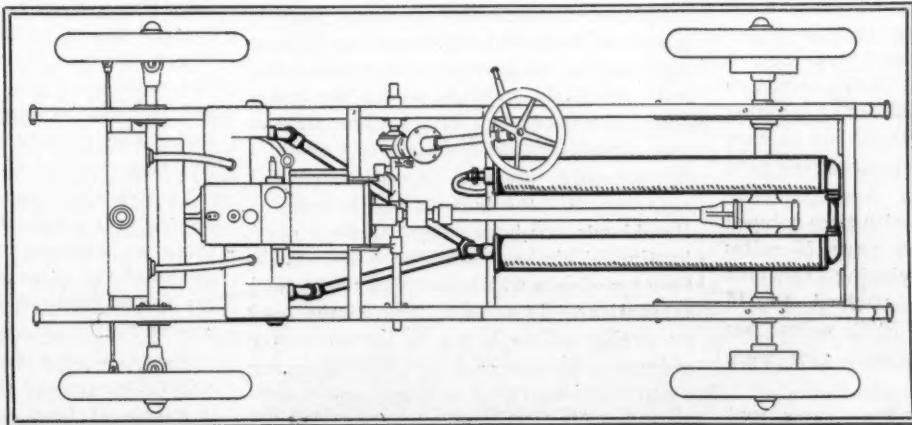
further sudden fall of a motor car running at good speed will be sufficient to show what happens to the body of a car when the shackles are oblique. The hinge movement of the shackle on the return of a spring is not the same as that on its downward throw, and it is apparent the shock absorber has its existence mainly from this cause. Hang the little shackles vertical—or nearly so, sufficient to act as desired—and the return of the spring will be

confined to the power of its tension or deflected state. It must return through the shackle on dead center, as it were, and not through the shackle as a hinge. That is the reason the Northern has so set its shackles. If this argument can be assailed I fail to see how, as the function of the shackle primarily is to allow for the varying lengths of the spring under the varying stresses. In the shop I find good engineering practices of the modern school and the equipment is first class. The gears are cut right in the factory and one of the latest Gleason are machines is turning them out at a good rate of speed. Jigs are used throughout the shop and no fewer than twenty-four separate parts are being ground for model C, a remarkable instance of good shop practice when the price of the car is considered.



VERTICAL SPRING SHACKLE ON NORTHERN CARS

Particularly interesting is the manner in which this firm tests its cars for hill-climbing. I specially asked Mr. Gunder son for a sketch of the rollers on which his tests are given. The idea as applied here is novel, particularly the means of altering the stiffness of the grade. The rollers are such as are used in other places to run out the engines, but in this instance the Northern people have so arranged the rollers that simply altering the spindle distances, which allows the car driving wheels to drop lower or rise higher as the case may be, changes the resistance given to the power plant. It is plain that such a principle theoretically figured out would give such results as could only be obtained by actually driving the car up inclines, the only difference presumably being the taking away of the traction of the front wheels. This, however, is no doubt partly compensated for by the small resistance that must necessarily occur at the point of the driving wheels where they are in contact with the rear roller. It must be remembered that the drivers must touch on two points and the weight is as great on the rear roller as on the forward one when this condition exists.



NORTHERN DOUBLE MUFFLER SYSTEM ON TWO-CYLINDER CARS

## BROOKLANDS TEACHES MANY GOOD LESSONS

I WILL tabulate the different points on which we consider that we have acquired valuable knowledge at Brooklands and I will then proceed to deal with them in detail in the following order: Tires, how to keep a car cool and how to prevent pre-ignition, how to mount long hills without distress, how to keep on running as regular as a train, but faster if necessary, how wind resistance affects the running of a car, how weight affects the running of a car, how speed affects the action of the springs and the construction of wheels.

In regard to tires, the first thing that struck me in running cars at Brooklands was that a certain degree of inflation was the most important point. All previous instruction from tire manufacturers and others who should know was summed up in the words "pump hard." We therefore pumped our tires up to the pressure recommended by the tire companies. The result was extreme discomfort at high speeds, owing to the wheels continually leaving the ground; by high speeds I mean traveling at a rate of 100 miles an hour; in other words, covering the ground at the rate of 146½ feet per second. Now it is only reasonable to assume that a jumping wheel—and that wheels do jump no practical motorist will dispute—is off the ground for at least 1-10-second, which means that the effect of a tire returning to the ground is practically equivalent to the car alighting upon it after a flying leap of 14½ feet. This treatment the tires seemed to resent very strongly, and they showed their resentment by quickly bursting, and this has always been the greatest trouble. Many people are under the impression that the tires wear away very quickly. That is not the case. If the banking is taken at the proper height for the speed traveled at, the actual wear on the tires is not at all great, considering the high speed. The bursting of the canvas casing, however, was much too frequent, and happened sometimes after quite a few laps, so it was purely a question, not of the tire getting hot and bursting from this cause, but simply through its inability to resist the pressure of air inside, plus the terrific blow inflicted by a heavy body exceeding a ton in weight, delivered by that body on alighting on the ground while traveling at a very high rate of speed. While seeking a remedy, I examined the effects of different tire pressures and with this object in view I had experiments carried out which gave me the following results: A car developing constant horsepower, with tires pumped to 100 pounds' pressure, gave 75 miles per hour; a car developing constant horsepower, with tires pumped to 45 pounds' pressure, gave 72½ miles per hour. The tires used in each case were 34.6 by 4.7 inches.

I took the extreme in both cases, and you will see that the actual amount of air

### S. F. Edge Describes Interesting Experiments with Tires and Engines on England's Big Track

in the tire made but little difference to the speed, but of course, obviously with the low pressure the tires would have got extremely hot and broken up through internal friction. I therefore have been making researches to find out how to get a reasonably soft tire, and yet one in which the wall friction would not be unreasonable. The Dunlop company has gone to a great deal of trouble in this matter, and has made me some tires of small section and very wide base; the idea being to do away with the tendency to come off even at low pressures, and I am anticipating great success from these tires. The Palmer Tire Co. has also gone to a great deal of trouble in the matter, and by fitting very large tires the wear is carried over a greater number of square inches, and it, too, has therefore been able to reduce the pressure in this way. I think both companies will show wonderful results during the ensuing season, for undoubtedly if the life of the tires is increased at Brooklands it means an enormous advantage to the user on the road. We may take it that 100 miles on Brooklands is equivalent to something like 1,000 miles of ordinary running where tires are concerned.

#### Cooling of Car Engines

How to keep a car cool and prevent pre-ignition is a most interesting subject. I went down to the track on the opening day and I watched a very large number of cars go round. Most people who attended there that day seemed to think the right thing to do was to go on the track with their car, and simply run "all out." This they did, and it was amusing to see them when they came off—their engines absolutely refused to stop, many of them were steaming furiously and the engines, through pre-ignition, seemed to run almost as well with the switch off as with it on. I fancy this came as rather a shock to most people, but luckily we already had had our experience of the effect of maximum output of power coupled with continuous running. This we gained at Ormond beach some 2 or 3 years ago, as well as a very similar experience with our marine engines, so this result was not unexpected, but at the same time it was a problem that had to be got over. I think, while referring to this subject, I may say that the bulk of the failures at Brooklands had been caused through overheating. This has been most noticeable in the case of cars which previously held good reputations. In ordinary use on the road an engine seldom is run at its full power

**EDITOR'S NOTE**—The accompanying article is a paper read by S. F. Edge before the Midland Automobile Club at Birmingham, England, on March 25.

for any length of time, and Brooklands, in this respect, has taught manufacturers that they have got to have proper cooling round their valve seating, and also their waterways throughout the whole cylinder casting must be arranged so that not merely places where water will remain stagnant, but every part of the cylinder can be swept out clearly and continuously by a constant rush of water. Distortion of the cylinders takes place through uneven heating, which further causes preignition through the plugs, and renders the valve heads practically incandescent. On the average car this point is not reached on the road, but still a point is reached on the road where the power of the engine begins to fall off, although not to such an obvious extent as at Brooklands. I think, in the particular direction of improving the cooling of engines, Brooklands will have a marvelous effect on the manufacturer, for he will now go there honestly to test his car, and will have to admit openly his failure or otherwise. My own experiences at Brooklands lead me to the conclusion that smaller radiators can be used here than on the ordinary road, because the high speeds attained force an enormous volume of air through the radiators. The difficulty of keeping the actual water and the radiators cool, which has been encountered by certain manufacturers, is a factor that may be entirely overlooked, for those who have failed in this respect are few.

The lessons learned in regard to keeping the engine cool applies equally to mounting very long hills on first or second speed. Of course, in this country we do not get long mountain work, but those who have toured abroad may run up steep passes for many miles, on first and second speed; and under these conditions the troubles I refer to, namely, preignition and distortion of cylinders, may ensue, added to which the efficiency of the radiator is greatly discounted owing to the enforced slow speed at which the car is running. In our anxiety to reduce wind resistance, and to cut down the size of the radiator at Brooklands, we had a great many tests made to find out the most efficient form of radiator, and, having done this, I claim that when deciding upon a given size of radiator, Brooklands' experience has materially helped us to solve the problem of mounting long hills without trouble, because we have sought for and found a more efficient radiator than had been used previously.

In regard to how to keep on running as regularly as a train but at greater speed, I think we demonstrated its possibilities by means of the three six-cylinder cars which ran for 24 hours at Brooklands. We have proved that it is possible now to make an ordinary modern touring car of not excessive horsepower that will run at speeds in excess of train speeds, absolutely continuously without any mechanical trouble.

From experience we found the most important factor in this case was the necessity of forced feed lubrication to every engine-bearing. With ordinary drip or splash feed we did not find it possible to run continuously for many hours, as it seemed to require too much skill on the part of the driver to keep the lubrication correct, and I have noticed that the cars which frequently fail on Brooklands are those fitted with splash or drip lubrication. They seem to suffer from an enormous surplus of lubricating oil at starting—judging by the smoke they emit—and even when started in this condition they apparently yet fail completely through insufficient lubrication before the end of the race.

#### Wind Resistance Important

Wind is the important speed restraining factor, and to make quite sure on this point I had the following tests carried out:

Area of wind resistance and screen	Speed in miles per hour
First run, 30 square feet.....	47.85
Ninth run, 14 square feet.....	60
Thirteenth run, 6 square feet.....	70.25
Sixteenth run, normal.....	79.0

These tests show very clearly the tremendous effect every square foot of wind-resisting area has on the speed of the car.

Following these trials, the next point seemed to be, where does weight come in? The results of tests, carried out with a 40-horsepower car, were as follows: Over a flying quarter of a mile, the average of three tests with the car in stripped condition showed a speed of 82.865 miles per hour; the average of three tests carrying 1,036 pounds showed a speed of 81.836 miles per hour. These results show clearly that once the car is in motion weight has very little retarding influence, provided the road wheel bearings are sufficiently good, and big enough, to stand the weight.

How speed affects springs is a question, too, of vast importance, for I have noticed that when dealing with the bigger cars, the comfort of the driver is the deciding factor as regards the speed at which the car is allowed to run. It is easy enough to build a fast car, but if the speed attained results in personal discomfort to the passengers, we cannot claim credit for very efficient design.

#### Value of Road Equalizers

The advantage of using road equalizers will be realized, when I record it as the result of personal experience, that with them a speed of 85 miles per hour causes no discomfort to the passengers, whereas without road equalizers a speed exceeding 70 miles per hour would seem excessive, all other factors being equal. I think the road equalizer or shock absorber is not sufficiently appreciated by the ordinary motor user. Properly designed devices of this sort enable one to have much lighter springs and to obtain the benefit of these light springs when running over rough roads, and yet the road equalizer keeps the springs under proper control when traveling fast. It also reduces the wear and tear on tires by reducing the amount of jump,

from the ground, of the tires, and similarly very materially reduces the dust-raising properties of the car. Anyone who will try this device carefully on a car will be amazed at the difference in running. The same idea underlies the reason why some makers bind their springs with string like the handle of a cricket bat, a practice which formerly was often seen at the old Gordon Bennett trials and races before the day of shock absorbers.

#### Wire Wheels Are Coming

Most of us who are riders of bicycles, or interested in the bicycle in any way, still in our hearts believe the bicycle wheel form of construction to be the best, and, although some makers, notably the Lanchester, had the courage of their convictions, and for years recommended and pushed the wire wheel, its popularity steadily declined until the advent of Brooklands. Again, those of us who are conversant with some of the older cars will further remember that the Bollée, Benz, Peugeot, de Dion and Darraq have in the past made a number of vehicles with wire wheels, but today practically none of them is doing so. Even the Lanchester, the principal champion of the wire wheel as opposed to the wooden or artillery pattern, has at times been compelled to abandon the former out of deference to public opinion.

The principal objection urged against the wire wheels are the fancied difficulty in cleaning them, dislike of their appearance, or some equally trivial objection; but the fact remains that on the whole the public will have none of them. Now, I have been using the Rudge-Whitworth wheel, and the result from my own experience has been that it reduces wear on the tires quite materially. At this moment I really am unable to advance any definite theory why this should be so. Certainly there is less unsprung weight on the tires, but this can hardly be a sufficient explanation of the success of the wire wheel. It has been suggested to me that where wire wheels are employed that the portion of the rim and the tire in contact with the road has not such a rigid backing as would be the case where a wooden spoke wheel is used; the explanation of this theory is that the wooden spoke is frequently in a direct line above the point where the tire strikes the ground, and that possibly the wire wheel is more flexible or resilient—or if I may coin a word more “pressable.” Take as an analogy the difference between driving a nail into a solid oak block, or into a piece of soft springy willow. I admit that this seems to be rather far-fetched, but still at the same time the fact does remain that with wire wheels I find the tires last longer.

I have noticed a very considerable change of feeling towards wire wheels

since these wheels have become well known at Brooklands, and many motorists are now adopting them, and I really believe that the time will come when the wooden wheel, which certainly has served its purpose extraordinary well, will be entirely superseded by the more mechanical and lighter wire wheel. One great advantage of the wire wheel which must not be overlooked is the fact that it can be more easily repaired than the wooden wheel.

If Brooklands had not come into existence, it is certain that Great Britain would have had to face the expense, involved by traveling to a foreign country, simply to compete for the large volume of business which racing undoubtedly brings in its train, whatever may be urged to the contrary. This is especially true as regards foreign business, as I have learned by practical experience. Once obtain the entrée by means of racing successes and it is then only a question of maintaining the quality of the cars supplied in order to ensure one's business and bring repeat orders. Brooklands, however, changed all these disadvantages. It gives us here in England a track, close to our manufacturing doors, the rules are administered firmly and fairly.

#### Great Britain's Opportunity

This has given Great Britain the opportunity that was formerly lacking for showing the foreigner that if fast motor cars were desirable Great Britain could make them. The amount of good that this has done, and must be doing for Great Britain, I think is hardly measurable as yet, but the fact that it is giving the foreigner food for thought may be gauged by noting that Germany, France and Belgium are all now considering very deeply the establishment of large motordromes in their respective countries. They have, of course, written down Brooklands, they have scoffed at it, but the fact remains that as an advantage to the British manufacturer Brooklands stands unrivaled. Since I have been in the motor business I have tried many different schemes of publicity, but there never has been anything that has brought such an enormous return in relation to the expense involved as a succession of wins at Brooklands. It has brought orders from abroad in a way that nothing else has done—it has placed the name of the British-made motor car in front of the foreign-made motor cars, and has shown the world that, if speed is the consideration they are looking for, that Great Britain can produce motor cars as fast as any produced in any other part of the world. The foreign sneer against British cars used to be that they were good solid cars, but very slow. This slur has now been removed. We know that in ordinary reliability trials Great Britain has always for many years past more than held its own with the foreign car, and now that the seal of speed is set upon the British car I think every manufacturer in this country will reap the benefit.





# The Readers' Clearing House



## MANUFACTURE STEAM CARS

Irene, S. D.—Editor Motor Age—What is the address of the manufacturer of the Stanley steamer and what other manufacturers of steam cars other than the White are there?—C. A. McChesney.

The Stanley steamer is manufactured by Stanley Motor Carriage Co., Newton, Mass. Other manufacturers of steam vehicles are: Lane Vehicle Co., Poughkeepsie, N. Y.; the Webb Jay Motor Co., 2335 State street, Chicago, Ill.; Edward S. Clark, Freeport street, Boston, Mass.; Louis S. Ross, Newtonville, Mass., and the Johnson Service Co., of Milwaukee, Wis.

## CONTAINING CAR DETAILS

Chicago, Ill.—Editor Motor Age—Can Motor Age tell me through the Readers' Clearing House where I can get a book with detailed illustrations of all leading motor cars, including the leading foreign makes, of the latter at least 1907 models?—Adolf Ebinger.

There is not in existence at the present time a book giving detailed illustrations of the leading American and foreign cars of 1907 models. Year-books containing such information are rare; in fact, have not as yet been used in this country. Books are published from time to time, such as "Motor Vehicles and Motors," by W. Worby Beaumont; "The Automobile," by B. M. Hasluck, and "Self-Propelled Vehicles," by J. E. Homans; the last mentioned gives details of construction of a great many American cars and undoubtedly will prove the most valuable for you. It is published by Theo. Audel & Co., New York.

## FLASH TEST OF OILS

New York—Editor Motor Age—Is there any test by which a good lubricating oil can be differentiated from a bad one, without actually trying them all on my machine? Is there anything in this "color test for carbon" I have seen advertised? It is claimed the light-colored oils contain less carbon than dark-colored oils.—A. Rafelson.

The chief essentials of a good lubricating oil are freedom from acid, and, where intended to be used in the motor itself, a sufficiently high flash point. To test oil for the first quality, take a piece of bright machinery steel and a short strip of cotton wicking. Soak the latter in the oil to be tested and wrap it around the bright metal. Place it where the sun will shine on it and allow it to remain there for some days. If the oil undergoing the test is absolutely free from acid, there will be no indication of etching on the steel, no matter how long the test may be extended, but even a comparatively small percentage will make its presence known at the end of a week or so, especially in warm weather.

**EDITOR'S NOTE**—In this department Motor Age answers free of charge questions regarding motor problems and opens its columns to a discussion of pertinent subjects. Correspondence is invited from subscribers and others.

## THE IDEAL MOTOR CAR

Motor Age, realizing the wide range of design in motor cars and the varying desires of the multitudinous buyers throughout the country, publishes herewith a blank form calling for specifications of an ideal motor car in which it asks each and all of its readers to fill out these specifications, accordingly as he or she thinks the ideal car should be. Besides filling these out, Motor Age will receive gladly other suggestions not included in this form, and will from time to time publish in its columns the general views of its readers on the status of the ideal motor car.

Horsepower	.....
Number of cylinders	.....
Wheelbase	.....
Springs	.....
Clutch	.....
Transmission	.....
Number of speeds	.....
Brakes	.....

### JUMP SPARK IGNITION

Single or double	.....
Dry cells	.....
Storage batteries	.....
Unit coil and distributor	.....
Atwater-Kent system	.....
Apple system	.....
Double system with magneto	.....
Low-tension magneto and coils	.....
High-tension magneto	.....
One or two sets of plugs	.....

### MAKE-AND-BREAK

Position of igniters	.....
Body style	.....
Passenger accommodation	.....
Kind of lubrication	.....

### TIRES

Clincher	.....
Quick detachable	.....
Demountable	.....
Solids	.....
Cushion	.....
Resilient wheels	.....

In order to ascertain the flash point of an oil, heat a sample of it over a Bunsen burner, or on a gas stove, placing a thermometer in it so the bulb does not come in contact with the wall or bottom of the containing vessel. When the oil begins to vaporize, take a lighted taper and pass it back and forth through the vapor. When its flash point is reached, the vapor will ignite in short blue flashes, but it will not continue to burn, nor will the oil itself take fire. The temperature at which this occurs is its flash point, and for motor car cylinder oil it should be quite high. Motor Age never has had any experience with the so-called "color test." Users of oils can follow either of the above tests with comparative ease and should have no difficulty in obtaining results.

## MOTOR BUGGY MAKERS

Rockham, S. D.—Editor Motor Age—Can Motor Age inform me and furnish me with the names of makers of motor buggies.—Subscriber.

Motor Age published in its Readers' Clearing House of January 6, 1908, on pages 16 and 17, a list of the manufacturers of motor buggies with their addresses.

## FRICITION-DRIVEN BUGGIES

Morris, Ill.—Editor Motor Age—Having been a subscriber to Motor Age for some years, we take the liberty of writing for some information. Are there any cars of buggy style made with air-cooled and friction drive? If so, please give the address of the makers.—M. N. Hull & Son.

Some of the makers of air-cooled, friction-driven motor buggies are: Hatfield Motor Vehicle Co., Miamisburg, O.; Waltham Mfg. Co., Waltham, Mass.; Reeves Pulley Co., Columbus, Ind.; Schacht Mfg. Co., Cincinnati, O., and Neustadt Automobile and Supply Co., St. Louis, Mo.

## WIRING STORAGE CELLS

Ventura, Cal.—Editor Motor Age—The manufacturers of a motor car place emphasis on their instructions to their patrons to always connect up their storage batteries in the same way, the positive pole to the coil and the negative to ground. Another authority claims that in passing from one point to another the electric current carries particles of metal with it, e. g., in the case of commutator, vibrator points and spark plugs, one point would be eaten away and the other built up. Hence, he advises reversing the poles of the battery each time it is replaced. Is there any merit in this, and if not is there any reason for keeping the battery always the same?—H. F. Clark.

Motor Age knows no reason why the battery connections should always be the same in order to obtain satisfactory ignition service. The authority in question is quite correct, and this action is particularly noticeable in the case of the coil vibrator contact points, less so in the case of the timer, and is absolutely a negligible factor where the spark plug is concerned, owing to the infinitesimal quantity of current passing at the gap of the latter. The action is exactly the same as that of the ordinary arc light, which, when trimmed, is supplied with a negative carbon but half the length of the positive. At the end of its usual period of burning, there is scarcely anything left of the positive carbon, while the negative has hardly decreased in size at all. The action naturally depends upon the amount of current passing, that is, the amperage. Motor Age

thinks it is good practice to reverse the connections each time the battery is replaced after charging.

#### MANUFACTURING ALCOHOL

Flint, Mich.—Editor Motor Age—I ask for information pertaining to the manufacturing of denatured alcohol, and any other information Motor Age can give me to enable me to make a 20-gallon still.—W. H. Yeats.

Complete information concerning the manufacture of denatured alcohol and the manufacture of a still may be obtained from the department of the interior, Washington, D. C.

#### USE OF EMERGENCY BRAKE

Chicago, Ill.—Editor Motor Age—The manufacturer of the well-known friction-driven car recommends that an emergency brake should not be used to stop a car when it is being reversed. Could Motor Age inform me why this is the case? Supposing the running brake wouldn't work and the car started to back down a hill, what should be done? What makes an internal-expanding brake grab when the car is reversed, whereas no trouble occurs when the car is running ahead?—James F. Smith.

There is no reason whatever why an emergency brake should not be used to stop a car when reversing, in spite of the fact it is very rarely used for such because the car is moving slowly and the foot-brake is the more convenient, the driver's hand being occupied with getting ready for the change speed lever. A properly constructed expanding brake will not grab when reversing. The only time when such could occur would be when the expanding member is made in one piece and is expanded from one end only, being anchored at the other end.

#### VARIED MOTOR TROUBLES

Newcastle, Del.—Editor Motor Age—I have a single-cylinder 10-horsepower model A Cadillac. The compression in the motor is not good; there are three piston rings and I put on two new rings, the middle one remaining as it did not appear to be much worn. I noticed the grooves in the piston were worn more than the rings. The new rings made the compression a little better but not what it should be. Should I have put on three rings? Is there anything I can put in the cylinder which will improve the compression yet not interfere with the spark plugs? I use grade A Mobile oil. Is that right for such a motor? I also have trouble with my motor popping sometimes when starting. It generally runs all right on slow speed, but when I throw the lever in the high speed, the motor starts popping as if the spark advance lever was advanced too much; I am sure the spark is not set too early. On good roads it runs fairly well. I also have trouble with the clutch disk slipping and am compelled to use resin as the leather on the disk becomes smooth. Is that right,

or does Motor Age know of something better? The motor makes considerable noise when running in slow speed, apparently in the transmission gear; as examination showed it to be all right.—R. H. Harrington.

In replacing the piston rings, three new rings should have been put on. The fact that the grooves show wear is evidence that the motor has been run for a long while after the piston rings had lost their effectiveness. If the use of three new compression rings does not restore matters almost to their normal condition, probably a new piston will be the only remedy. Any other method of increasing the compression could only be a makeshift—that is, such expedients as placing an iron plate on the head of the piston and the like. Examination of the piston may show it to be possible to turn new grooves in it, requiring a slightly wider piston ring, in consequence, and, next to a new piston itself, this is doubtless your best remedy. Most refiners recommend certain of their brands for use on certain makes and models of cars, and you seldom will go wrong in following their advice. Motor Age cannot state definitely whether the brand of oil in question is the best for your car, and, except by making experiments, the only way of finding this out is to apply to the builder of the car.

Popping in the carburetor is usually due to a weak mixture which continues burning in the cylinder throughout the exhaust stroke and until the inlet reopens, the escape of the gases still under pressure being responsible for the noise. Motor Age does not find your statement, "popping as if the spark advance lever was advanced too much," entirely clear. Do you mean an actual popping, that is, like a slight explosion of gas in the open air, or a knock? It would appear to be the latter, from your description, especially when taken in connection with the condition of the other parts of the motor. This would result from a loose big-end, or wristpin, bearing, and always makes itself manifest when the load is applied. The fact that it runs fairly well at all times is merely evidence that it is being run under conditions sufficiently favorable to call for but a fraction of the motor's power to propel the car. The noise from the change speed gear is only an indication of its worn condition. The planetary type is far from being noiseless, even at its best, when run on the low speed. There is no remedy that Motor Age knows of, except a new gearset, which would be an expensive repair. Filling the gearcase with "dope," or heavy grease, may suffice to stifle the noise to a certain

extent, but it imposes an added resistance on the gear, and is usually not recommended by manufacturers, though very generally practised by repairmen. Probably the high-speed clutch may need adjustment, bringing its face closer together, or a new leather facing, or both. Soaking the new leather disk in neatsfoot oil before applying will prevent its drying out and becoming polished, though the lack of proper adjustment is doubtless responsible for the latter, as the leather is only held against the metal with sufficient force to grip when the load is light; the rest of the time it is the same as if it were being pushed against a polishing wheel.

#### ALUMINUM SOLDERING FLUX

West Liberty, Ia.—Editor Motor Age—I write for information concerning soldering for aluminum ware. Please advise if there is anything ready for immediate use, or whether there is a flux which can be used with common solder. Should Motor Age fail to know of anything of the kind, please advise me where I may be able to get it.—Louis K. Nichols.

There are numerous formulæ for solder and fluxes to be used on aluminum given in various works, but usually they call for the materials not readily procurable in small places, and the method of preparing them is not always possible to the worker with average facilities, so that you will find it much better to buy solder of this kind, which is now on the market. You will find the announcements of manufacturers of aluminum solder in the advertising columns.

#### TIRE-FILLING COMPOUNDS

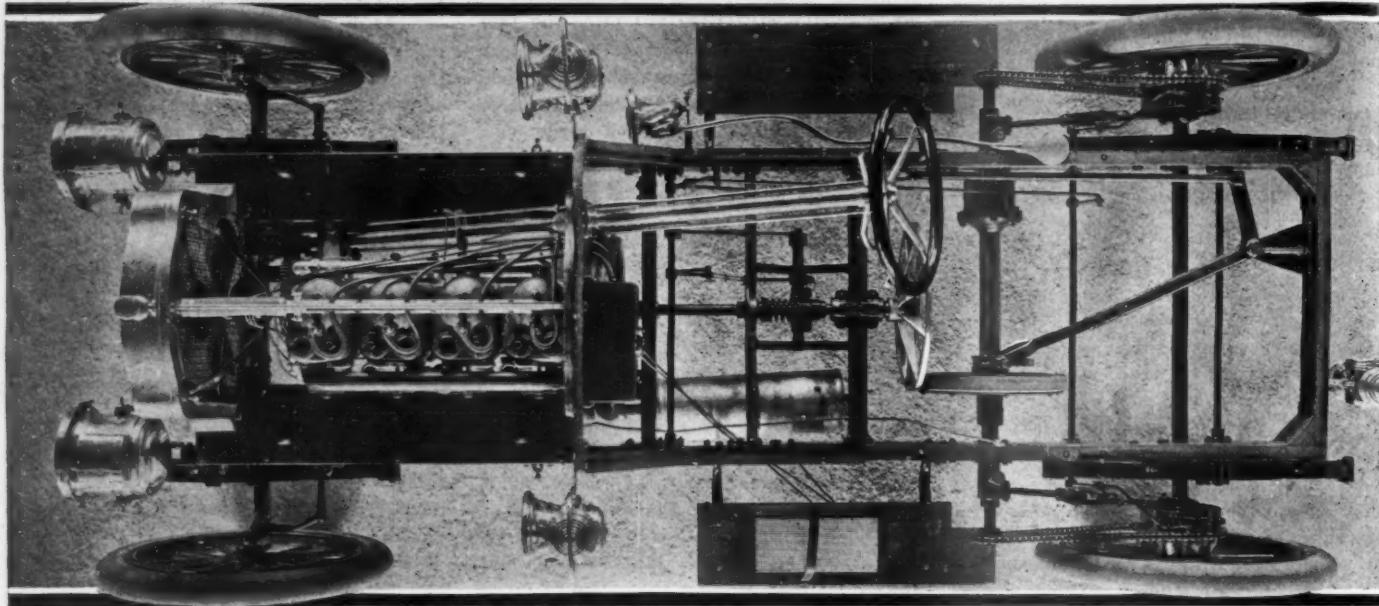
Davenport, Ia.—Editor Motor Age—In the issue of March 26 the Readers' Clearing House mentions glue, glycerine and other ingredients being used to fill tires instead of air. Please give me an opinion if it is advisable to use tires filled with such compounds. What are the advantages and disadvantages of such fillings?—G. Treimer.

The chief advantage of using tires filled with such compounds is that they are proof against punctures and similar forms of injury. On the other hand, they have the disadvantage of greatly increased weight, loss of resilience to a certain extent, and the difficulty of repairing the tire after it has been filled with these compounds. Probably there are some readers who have had extended experience with tires that have been subjected to this treatment, and give more definite details of both sides of the subject on which information is asked for the benefit of the reader.





## FIELD OF MOTOR CAR DEVELOPMENT



CHASSIS OF EARL FOUR-CYLINDER CAR FITTED WITH WHEEL AND DISK FRICTION TRANSMISSION

WHILE the expansion of the motor buggy field in the middle west was attracting new converts daily through the steadily increasing number of friction-driven cars, a new concern, the Earl Motor Car Co., was locating in Kenosha, Ill., and manufacturing on a medium scale friction-driven cars of the two-cylinder type, employing the conventional disk-and-wheel transmission system, although using new methods of engaging these friction members. The car then marketed was a 16-horsepower design with an opposed motor in front and the transmission located midway between the motor and rear axle, permitting of the use of reasonably short side chains for transmitting power to the rear wheels. Since then the company has climbed higher on the ladder of motor car manufacture by bringing out for the present season a larger two-cylinder car and a

four-cylinder, the manufacture of which occupies the major energies of the Kenosha plant.

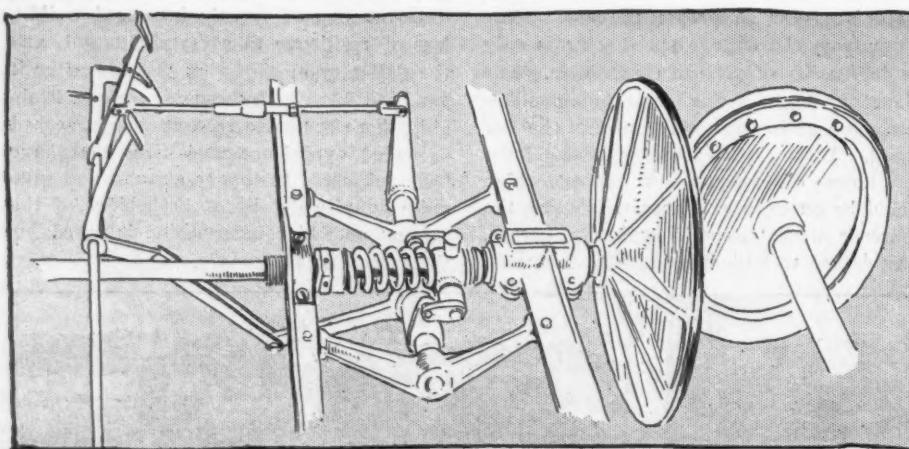
The style of transmission used in the two and four-cylinder cars is the same and a sketch shown herewith illustrates the general design. At the rear face of the flywheel is a universal joint and the longitudinal drive, which at its forward end is a sliding fit within this joint, carries on its rear end the radially-ribbed friction disk, which contacts with a sliding friction wheel on a rigid cross-shaft. The friction disk, with its longitudinal shaft, slides endwise for engagement with the friction wheel and disengagement therefrom, but the novelty in connection with this is that a heavy spiral spring, shown in the sketch, keeps the disk constantly pressed against the friction wheel, the same as a clutch spring keeps the clutch engaged except

when released by the driver by pressure on the clutch pedals. Should this spring, due to any causes, not give sufficient contact between the disk and wheel, pressure on a pedal may be used to augment such engagement. The reader will at once recognize the difference between this friction scheme of constant engagement and that generally used, the general scheme being to keep the disk and wheel separated normally and bring them together by a ratchet-retained pedal, thereby depending solely on mechanical means for engagement of them.

In disengaging the disk and wheel, a ratchet-retained pedal, whose connections are illustrated herewith, is used, by means of which the disk is locked by the ratchet in its disengaged position, the coil spring at this time being under compression. Should, however, the spring not give sufficient engagement then the left pedal is used to assist in forcing the disk against the wheel.

The much-talked-of slip between the disk and wheel is not looked upon as sufficient excuse for a differential and consequently fitted to the right end of the cross-shaft is a spur-gear differential.

Conspicuous in the running-gear of the Earl roadster is the employment of a wooden chassis frame, the sills being reinforced by steel plates  $3\frac{1}{2}$  inches wide and taken from  $\frac{1}{2}$ -inch stock. Spring suspension throughout is by full-elliptics, the driving strain of the rear axle being absorbed by two turn buckle radius rods, extending between the axle and the jack-shaft. Braking effort rests with a pair of band brakes on the rear wheel to which car



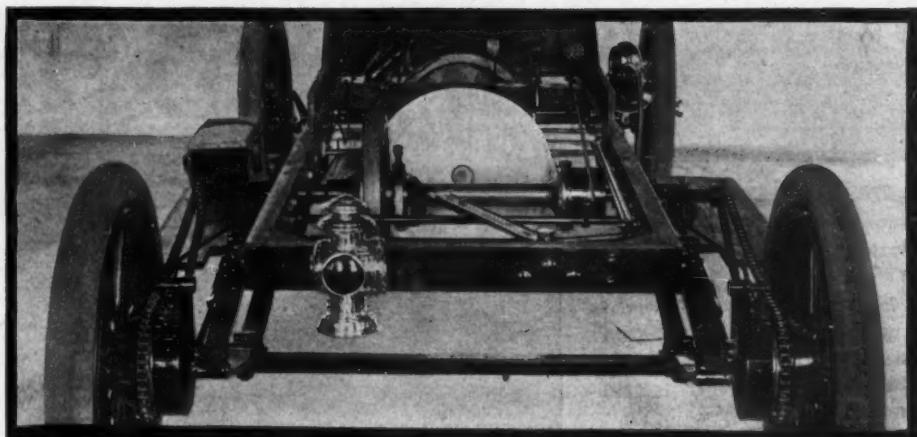
EARL FRICTION SET AND METHOD OF OPERATION

be added the action of the friction reverse. The forward axle of the tubular design is straight from end to end.

Used in this car is a Waukesha motor, characterized by 4 by 4-inch cylinders, both sets of valves carried in chambers on the left side and a jump spark ignition, with one set of plugs carried not in the valve caps but in the angle between the intake and exhaust valve and the cylinder dome. Cooling and lubrication are standard.

#### MOTOR CAR LITERATURE

This week the Class Journal Co., publisher of Motor Age, brings out the first of the 1908 series of "The Official Automobile Blue Book," carrying forward by a second full year the work first undertaken in the compilation and publication of the one-volume edition of 1906. While practically covering the same territory as the corresponding 1907 volume, approximately one-half of the entire territory has been written new from personal observations with odometer measurements. There are 292 separate routes in the book, totaling 19,135 miles. Of the 313 maps, 133 are route maps, principally in the margins of the pages; 137 city maps, with thirty-five full-page maps. There are in addition, three double-page maps, whose six pages cover the territory in general from the Hudson river, Long Island sound and Lake Champlain to the Rhode Island-Massachusetts coast, the upper Maine border and the Canadian line. By the aid of these maps and the index—both of places and of trunk lines, the latter being a framework by which separate runs are listed consecutively as through routes—a tourist is able to find his way with a convenience and certainty never before approximated, practically throughout New England. As an example of the thorough character of the present work, it may be cited that one is able to plan a round trip to and from the White mountains from New York by three different trunk line routes, complete con-



VIEW OF FRICTION TRANSMISSION AND CHAIN DRIVE IN EARL CAR

nections to and from which are easily made by the regular routes of the different sections from practically any point in New England. The highest point reached by the matter compiled new for the 1908 edition is Dixville Notch, N. H., this route skirting the upper Connecticut river valley to Colebrook, crossing over through Dixville Notch to Errol on the New Hampshire-Maine border, thence down the Androscoggin valley to Gorham and the White mountains. The important stretch between the White mountains and Portsmouth was written new from personal observations for the first time, with odometer mileages throughout, and many another stretch that has heretofore been traveled with uncertainty, if not with actual difficulty, has been made plain by this latest edition, the number of whose pages have been increased over 200 to accommodate the additional material. The Blue Books are again brought out under the exclusive official endorsement of the American Automobile Association. The New York state volume is now entirely in press, and will shortly be issued, followed by Volume No. 3, dealing with New Jersey, Pennsylvania, south and west. There is shortly to be an addi-

tion of a fourth volume, covering the middle west. The extension of routes to and from the middle west evidences both the rapidly broadening field of the Blue Books and the growth of touring in that territory. A separate volume, published by the Class Journal Co., is the "Metropolitan Automobile Guide," comprising seventy-four different round trips to and from New York and Brooklyn, ignoring the state lines and other divisions that necessarily exist in a work as large as the Blue Books.

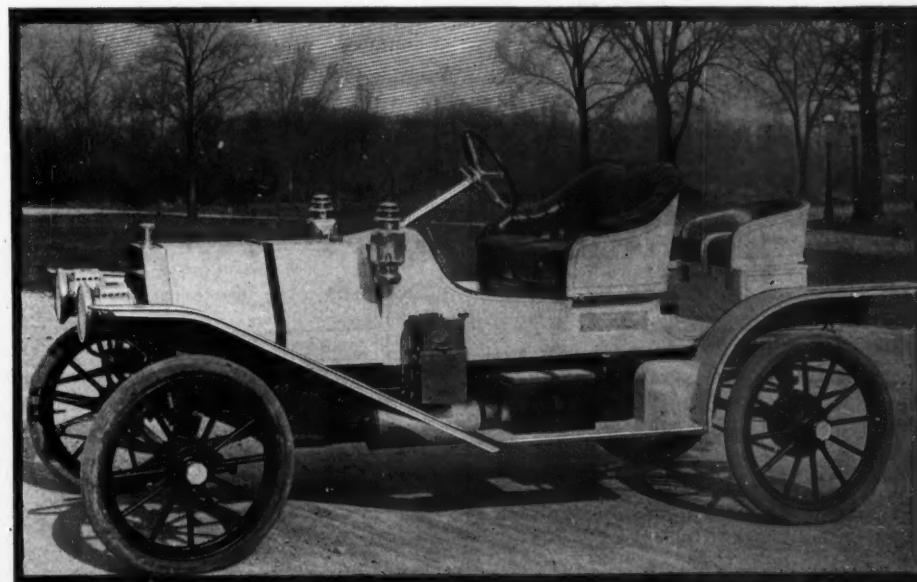
"Roads Made Easy," by Claude Johnson and published by The Car, London, Eng., is in two pocket-size, cloth-covered volumes and gives road directions in England. Volume 1 covers road routes over southern England, radiating from London and extending to Land's End. Volume 2 covers routes in the triangle lying between London, Bristol and Liverpool, including Wales. Use is made in both volumes of a series of abbreviations, a few of which are: V with left side heavy means take left road at fork, and with right side heavy is to take right road at fork; R means right, L left; S O, straight on, and right angles and other signs have appropriate meanings.

#### SPECIFICATIONS EARL ROADSTER

Horsepower—22  
Cylinder diameter—4 inches  
Piston stroke—4 inches  
Ignition—Jump spark  
Transmission—Friction  
Brakes rear wheel—Contracting bands  
Springs—Full elliptic, 34 inches long  
Drive—Side chain  
Frame—Armored wood  
Wheelbase—107 inches  
Tires—32 by 3½  
Weight—1,640 pounds

#### TWO-CYLINDER EARL

Horsepower—20  
Number of cylinders—2  
Cylinder diameter—5½ inches  
Piston stroke—4½ inches  
Transmission—Friction  
Springs and running gear—Same as in four-cylinder car



FOUR-CYLINDER EARL ROADSTER CAR

# AMONG THE MAKERS AND DEALERS

**Will Handle the Reo**—The Automobile Supply Co., of Burlington, Wis., has taken up the agency for the Reo.

**Buys Dragons**—The Gorson Auto Exchange, 617-619 Arch street, Philadelphia, has purchased all the touring cars and supplies of the defunct Dragon Motor Co.

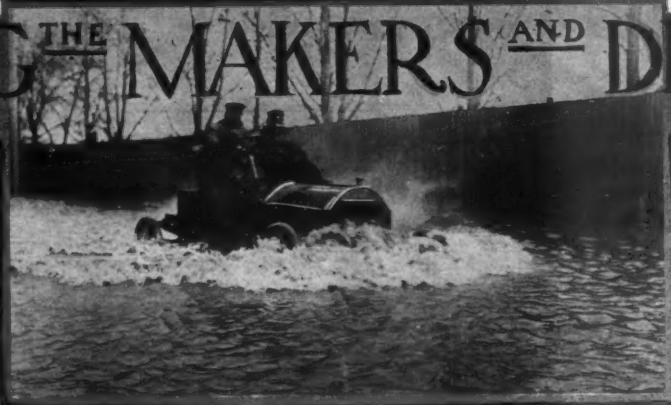
**Making Reverse Gears**—The Triumph Gear Co., which was formerly the Motor Parts Mfg. Co., has removed from Sixth and Congress streets, Detroit, Mich., to Seventh and Abbott streets, and will devote the entire factory to the manufacture of marine reverse gears only, it is stated.

**Machinery for Wayne**—The Wayne Automobile Co. announces that the last of a series of contracts for new machinery to the extent of more than \$100,000 has been closed. The first of these new machines, a mammoth drill press, has been received and now is in operation, while several other pieces of special machinery are being set up at this time.

**Revive Shoemaker Company**—Six of the traveling salesmen of the Shoemaker Automobile Co., which lately went into bankruptcy at Elkhart, Ind., have organized a stock company and incorporated for \$50,000, with the idea of continuing the business and resuming operations of the factory immediately. The name of the new concern will be the St. Joseph Motor Car Co., it is announced.

**Agency Change in Buffalo**—John J. Gibson, of the Buffalo Automobile Exchange, has taken the Pope-Hartford agency in Buffalo, and will handle that car in connection with the Franklin. Wilbur C. Walker, secretary of the Pope Mfg. Co., recently visited Buffalo and transferred the agency from the Imperial Motor Co., which has handled the Hartford line for the past 2 years.

**Bergdoll Gives Big Dinner**—Men of prominence in almost every department of the motor car industry of this country participated in the inaugural dinner of the Bergdoll Motor Car Co., of Philadelphia, held in its new building on Wood and North Broad streets the evening of April 8. The dinner, which was attended by all the representatives of the different concerns located in Philadelphia and prominent men in the trade from Chicago and New York, to the number of 200, was held on the second floor of the building. President Bergdoll in a speech gave out the information that he had purchased the Benz entry in the grand prix, that he expects to have the car in this country right after the big race



PREMIER'S WATER TEST OF ITS IGNITION SYSTEM

abroad and that he will enter it in the Vanderbilt cup race and endeavor to drive it 100 miles within the hour at Ormond beach next January.

**Tincher on Chicago's Row**—The Tincher Motor Car Co., of South Bend, Ind., has removed its Chicago branch from the Chicago Automobile Club building to 1220 Michigan avenue.

**Moore Opens New Place**—Lester D. Moore has opened a salesroom at 814 Fourteenth street, Washington, D. C., and will handle the Reo and Premier. Mr. Moore has been connected with the Washington trade for several years, and is well and favorably known.

**Mitchell Plant Busy**—The Mitchell Motor Car Co., of Racine, Wis., now is employing 534 men for 12 hours each day. The company reports that during the month of March 225 machines of all types were sold and shipped from the factory. This is a record for the company.

**Stepney Starts Suit**—Suit was filed in the federal court at Indianapolis recently by the Stepney Spare Motor Wheel, Ltd., and the Spare Motor Wheel of America against the Black Mfg. Co., of Fort Wayne, alleging infringement of patents and asking an injunction. The emergency wheel in question was recently brought out by Marion Black, of Fort Wayne, who organized a company a few weeks ago to manufacture it.

**Two Plants for Elkhart**—Two companies have been organized and incorporated at Elkhart, Ind., within the last week for the purpose of manufacturing motor cars and both soon will be in operation turning out 1908 models. The first of the new companies is the St. Joe Motor Car Co., which has \$50,000 capital stock. The directors are: Charles S. Conover, Oval G. Sellers and Charles A. Cooper, of Kansas City; Michael L. Fechler, of St. Paul, Minn.; Edward L. Shires, of Boulder, Col.; Charles Le Tempt, of Harrisburg, Ill., and Scott Van Etten, of Elkhart. The Elkhart Motor Car Co. has \$100,000 capital stock and expects to be turning out motor cars at a lively rate soon. Dr. Edward Crow, Franklin O. Hudson, Charles L. Monger, Martin E. Crow

and Willard W. Sterling, all of Elkhart, are the members and directors of the company.

**Has Franklin and White**—The Butte Novelty Works, 108-110 East Broadway, Butte, Mont., has just taken on the Franklin line. It also handles the White steamer.

**Takes Fuller's Old Store**—F. R. Parker, Boston agent for the Elmore, has moved into new quarters at 243 Columbus avenue, where Alvan T. Fuller, of the Packard, was located for several years.

**Premier's Water Test**—The Premier Motor Mfg. Co. has been conducting a series of tests to prove the value of a low-tension ignition system, and proving the almost entire absence of trouble from short circuits due to moisture, as is illustrated by a photograph showing a Premier running hub deep in the water.

**Located in Angola**—Z. E. Danner, formerly of the Commonwealth Power Co., of Allegan, Mich., and J. W. Reek, formerly of Hillsdale, Mich., have opened up in the Hendry block, Angola, Ind., under the name of the Angola Automobile Garage, doing a general garage, repair and supply business. Their place is specially fitted for the purpose, and a good equipment of machine tools has been installed.

**Big Order for Engines**—The Peerless Motor Co., of Lansing, Mich., has just completed the erection of a plant and the installation of special machinery for the manufacture of a million dollars' worth of motors for the Hercules Gas Engine Works, of Alameda, Cal. This is per contract entered into in 1907, the company to take this amount of engines during the next 10 years. One hundred additional men have been employed for the work.

**Boston Show Profitable**—The Boston Show Association, made up of about thirty local dealers, which conducts the Boston show each year, held a meeting a few days ago and a dividend was declared on the stock. It was not as large as the one of a year ago, but that was not surprising, as this year there was no motor-boat affiliation, and this led to a falling off in the receipts. However, the dividend declared the other day was about 60 per cent of what was paid last year, and as there is to be a further dividend later the total will be a very substantial figure. It was decided to hold next year's show at the same place at the same date, March, as this year. At the next meeting in June the association will decide the question of management. Chester I. Campbell, who has held the position for the past few years, and

has successfully conducted the shows, is in line for the place again. It was rumored that President J. H. MacAlman of the show association would be a candidate for manager of the next show.

**Yerger Promoted**—Frank H. Yerger, whose work at the wheel of the Studebaker in many recent road and track events in and about the Quaker City, has been promoted to the managership of the Philadelphia branch of the Studebaker company at 330 North Broad street.

**Kissel Wants More Room**—George A. Kissel, general manager of the Kissel Motor Car Co., of Hartford, Wis., says the company is pressed for warehouse facilities and another new building may be erected shortly. The company has spent nearly \$250,000 in buildings and equipment in the last 3 years.

**Opens Show Rooms**—The Sinclair-Scott Co., the only motor car manufacturer in Baltimore, Md., will open up show rooms in the Academy of Music building, North Howard street, near Franklin. The company makes the Maryland car. Its factory is located at Wells and Patapsco streets in South Baltimore.

**Apples in New Concern**—H. F. Apple, O. D. Apple and V. G. Apple have formed the Apple Electric Co., which already has on the market a storage battery. Shortly it will announce its new dynamo-floating storage battery ignition system. V. G. Apple still retains his interest in the Dayton Electrical Mfg. Co., and will continue to serve as its vice-president.

**Prest-O-Lite Decision**—The Indianapolis city council finally has passed on the Prest-O-Lite company plant question in that city. Under the ordinance passed the company can occupy its new plant for storage purposes, but the manufacture of gas and compression will have to be done in a plant on the banks of White river. The whole controversy was aroused after the company had spent several thousand dollars building and equipping a fireproof plant, objection being raised by a neighboring hospital.

**England's Big Speed Indicator**—Like the Warner Instrument Co., of Beloit, Wis., which built a giant Auto-meter, the Cowey Engineering Co., of England, has turned out a similar instrument, with the object of giving to the motorists and the public generally an accurate idea of the speeds of various vehicles traveling along the public roads, and with a view to demonstrating the accuracy and reliability of the speed indicator in question. The indicator itself consists of four dials. The two sides ones are 4 feet in diameter, the back one 2 feet 6 inches, and the small index dial in front 9 inches. The pointers of all four dials are bevel-gearred off a central shaft, and it is surprising to know that this shaft, which operates all the pointers, is actually driven by one of the firm's ordinary speed indicators made about half as big again as the normal size—i. e., 6 inches

in diameter. The whole apparatus is driven, as are all Cowey indicators, by means of bevel gearing and a special chain drive from the road wheel.

**Will Become Motor Brokers**—George H. Kimball and George R. Emerson, who were identified with Boston agencies for several years, have formed a partnership. They will do a brokerage business in motor cars at the motor mart in Boston.

**Penney Out**—Comus B. Penney, of Buffalo, has severed his connection with the Imperial Motor Co., at 1094 Main street. The announcement was made that a deal had been put through whereby Mr. Penney turned over his entire interests in the Imperial Motor Co., of Buffalo, to the Buick Motor Co., of Flint, Mich.

**Two Concerns Consolidated**—The Fred A. Mabbett Co., at Rochester, N. Y., and the United States Automobile Co. have consolidated. The new concern will be known as the United States Automobile Co. and will handle the following lines: Franklin, Pierce, Locomobile, Stevens-Duryea, Cadillac, Oldsmobile and Selden.

**Pendleton Has New Company**—F. R. Pendleton, agent for the Cartercar in Boston, has formed a new corporation there to handle that car. It is now the Carter Co., of Boston. The new concern has moved into the motor mart, taking the section of the building formerly occupied by the Corbin company. Mr. Pendleton is president of the new concern.

**Grabowsky a Founder**—Max Grabowsky, who was one of the founders of the Rapid Motor Car Co., and who recently severed his connection as general manager of that concern, has organized a new company in Detroit to be known as the Grabowsky Motor Car Co. The company will manufacture a car of new design built along lines laid down by Grabowsky, who claims a number of advantages for his new model. One of the features will be a removable power plant, which can be taken from the machine either for repairs or for replace-

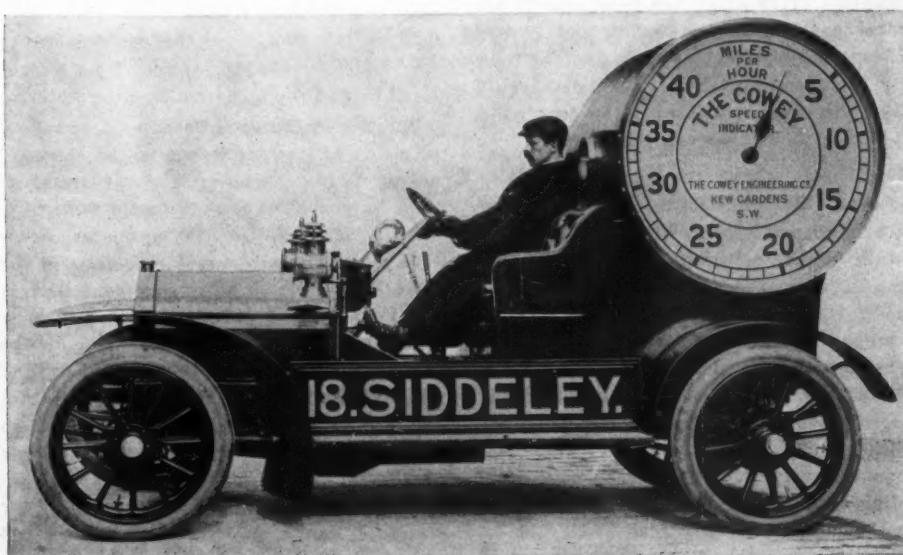
ment by an entire new plant without disturbing the rest of the machine. The power plant will be located in the front of the machine.

**Downey Moves to Magnolia**—Joe Downey, well known as a driver of racing cars, has leased the garage at Magnolia, Mass., for the summer, where he will place half a dozen big cars. Many notables spend the summer at Magnolia, and there is always a demand for cars there.

**Plans Reo Outing Day**—The Curtis Automobile Co., of Milwaukee, agent for the Reo, has started plans for a Reo outing day. The company will invite all Reo owners to gather for a pleasure drive, parade, banquet and contests on appearance. The objective point, it is planned, will be a famous summer resort in Wisconsin.

**Repair the Building**—The building at 4390 Olive street, St. Louis, which was partly destroyed by fire January 17, has been repaired and will be occupied jointly by the Star Auto Repair Co. and the Johnson Automobile Co. The Star company has a shop fully equipped for repair work. It also is getting out a new carburetor. The Johnson company will handle the Ford and also deal in second-hand cars.

**Royal Patent for Michelin**—King Edward of England has just granted the royal patent to the Michelin Tire Co., making it official purveyor of tires to the throne and incidentally to the royal motor cars. This is a much-coveted privilege, as it almost invariably results in the adoption of the article so favored by all the members of the court, the nobility, the near-nobility or aristocracy, and so percolates down through the various social strata until its use has become universal among every class whose pocketbooks will stand the strain. The king, the court and the aristocracy have been using Michelin's almost exclusively for years, and the royal patent is of service merely as an added mark of prestige and a recognition of services performed.



ENGLAND'S BIG SPEED INDICATOR, USED FOR DEMONSTRATING PACE ON STREETS



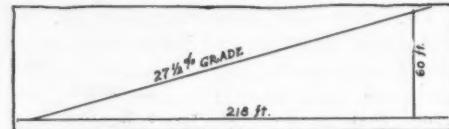
PIERCE-ARROW CLIMBING WATER CHUTE AT RIVERVIEW PARK, CHICAGO

**After Car Thieves**—Members of the Rochester Automobile Club of Rochester, N. Y., have decided to appoint a member of the club a deputy sheriff to assist the police in stopping thefts of motor cars left in the street.

**Club Goes Dry**—The Bay State Club in Boston will be a sort of a Sahara after May 1 next, as it will not have its license to sell liquors to members renewed. The price for a club license has gone up, and the club has found it is too expensive to maintain one, as the profit on liquors sold during the year does not pay for the license, and the other expenditures in the club are very heavy.

**Canada to Build Boulevard**—Within the next 2 years the Canadian government will begin the construction of a \$200,000 boulevard connecting Fort Erie, Ont., located across Niagara river from Buffalo, and Niagara-on-the-Lake. It is proposed to make the drive along the river one of the most beautiful in the world, and it will be especially attractive to motor car tourists. Between Fort Erie Park and Niagara Falls the boulevard is to be 80 feet wide. This section will cost in the neighborhood of \$125,000.

**Clever Mail Carriers**—There are three rural mail carriers in Wisconsin on whose manly breasts motorists would like to pin leather medals. They are Peter Olson, R. F. D. No. 4, Cambridge, Wis.; G. A. Cressy, Hilbert, Wis., and E. L. Demarest, Waupaca, Wis. These boys in gray have started a movement for road and highway improvement that is as novel as effective. Without any suggestions, excepting perhaps the pricking of a conscience after riding corduroy roads, Mr. Olson concocted a scheme to get better roads. He got together the farmers on his route, presented each with a neat circular printed at his



SHOWING GRADE CLIMBED BY PIERCE

own expense and telling how to improve the highways, and announced a prize of \$5 to the farmer who improves and maintains best any stretch of road half a mile or more between April 1 and June 1. Messrs. Cressy and Demarest followed the example. The split-log drag, a Wisconsin invention of great success, will be the implement of improvement.

**Tests Speed of Peerless**—Just to show what a six-cylinder Peerless really could do on the road, R. R. Ross, of the Boston agency, took one out a few days ago with a party of newspaper men, and, traveling out on the state highway, a good spot was selected for a speed trial. James McKenney was driving it and four trials were made. The first time the car went at a speed of 69 miles, the second time 67, the third 68 and the last time 71 miles an hour.

**Novelty in Carnival Parade**—A novel application of gas explosions in the shape of an oxy-hydrogen gun of twelve barrels was used by the New York Transportation Co. to call attention to its taximeter motor cabs and other public motor vehicles in the New York parade. The gun consisted of twelve pieces of different sized gas pipe, open at one end, with a spark plug in the other. A small bore tube admitted oxygen and hydrogen gas from a mixing valve in the proper proportions to make a sharp explosion. When the pipe was full of gas the spark was set off and an explosion resulted. The smaller tubes gave a peculiar whistling explosion, while the larger pipes made a loud noise. The New York Transportation Co. in its taximeter section also

had a specially designed confetti gun, worked by compressed air, installed on one of its huge Fifth avenue de Dion gasoline stages. As the confetti was shot up into the air, the rays from a 500,000-candle-power searchlight were thrown on the flying particles and gave the effect of a fountain of colored fire.

**Thomas Claims the Record**—The E. R. Thomas Motor Co. disputes the record claim of Jack Lewis, who asserts he drove from Buffalo to Rochester in an American roadster in 2 hours 3 minutes. The Thomas company points out that A. Vernon Hart, the Thomas dealer in Rochester, drove the distance between the two cities in 1 hour 32 minutes 45 seconds.

**Car Thieves in Buffalo**—Roused to activity by the many thefts of motor cars recently, the members of the Buffalo Automobile Club have decided to ask Superintendent of Police Regan to make special efforts to run down the robbers. Every day or night a motor car is taken from in front of its owner's home. Sometimes the car is found in a battered condition in some ditch near the city limits. Sometimes the machine isn't found at all, the thieves keeping it.

**Unique Demonstration**—H. Paulman & Co., of Chicago, sold a Pierce-Arrow six last week after a most convincing demonstration. A prospective declared if the six could climb the water chute at Riverview park, an amusement resort on the north side, he would buy the car. The grade at the chute is 27 1/2 per cent, and in order to reach it it was necessary to build a temporary bridge. Carrying seven people the Pierce tackled the proposition, climbed half way, was stopped by its brakes, then proceeded to climb to the top without apparent effort. Then it turned around and came down the hill. The prospective made good.

**Herreshoff Wise Motorist**—It is not generally known that John B. Herreshoff, the great boat builder and designer of racing yachts at Bristol, R. I., is somewhat of a motor car enthusiast. Despite the fact Mr. Herreshoff is blind, he takes keen delight in motoring. He has at least a dozen cars in his garage at Bristol, and he does a lot of experimenting with them. Long before the motor car was manufactured in this country—in fact, 30 years ago—the Herreshoff company was experimenting with gasoline engines. So today the motor cars are used for experimental work. Herreshoff has four and six-cylinder machines of the best makes. Mr. Herreshoff is in close touch with some of the prominent car manufacturers, and he has given them the benefit of some of his deductions. When he goes out for a ride he will sometimes ask his driver what time it is. On being told he will remark, "We should be at such a place now with this car. If we had the four we would be at so-and-so. It takes that car so many minutes more to do it." He has the system

of travel down so that he knows different places and can tell just where the car is at as if it were a railroad train running on schedule. The speed of each car is at his tongue's end and he makes mental calculations with wonderful rapidity.

**Sets Hill-Climb Date**—The Worcester A. C. has definitely settled upon June 6 as the day on which it will hold its hill-climb at Worcester, Mass. The legislature passed the law allowing contests, and the club now will prepare the old course and fence it off so it will be in fine shape by June 6. The club voted that the events would be open only to regular stock cars. Boston probably will have a large number of machines entered.

**Two Benjamin Briscoes**—Benjamin Briscoe bought a Maxwell car last week. This would seem to disprove the old saying that doctors seldom take the medicine they so blithely prescribe for their patients, for if there is one prescription Benjamin Briscoe considers a universal panacea for motor ills, it is the Maxwell. However, the Benjamin Briscoe in this case is another—he lives in Nashville, Tenn. When his order came to the factory, Benjamin Briscoe, the original, rubbed his eyes incredulously, for, strangely enough, the signature strongly resembled his own. Having satisfied himself the check which ac-

companied the order was not drawn on his own bank, Briscoe, of Tarrytown, accepted the order of his namesake in Tennessee and gave orders to ship it instanter, for, said he, "Every Briscoe needs a Maxwell."

**Motor Cycles for Cops**—Police Commissioner F. B. Newell, of Binghamton, N. Y., has announced that about the middle of July there will be added to the local force some motor cycle cops. The motor cycles will be equipped with speedometers for the apprehension of motor car scorchers in that town.

**Make Fight on Jenkins**—John J. Jenkins, member of congress, representing the eleventh district of Wisconsin, is having the fight of his life for re-election, and the motorists are the principal factors in the fight. Irvine L. Lenroot, former speaker of the Wisconsin assembly, unsuccessful candidate for governor of Wisconsin and for United States senator, is opposing Mr. Jenkins, and motorists are helping him wherever they can. The eleventh district comprises several large counties in northern Wisconsin, with Superior, the greatest iron shipping center of the Great Lakes, its center. Superior nearly is on the boundary between Wisconsin and Minnesota, and motorists who take trips into either state find considerable trouble be-

cause of license numbers. Congressman Jenkins' opposition to the federal registration bill has incurred the ire of car owners. However, not only Wisconsin and Minnesota owners wish Jenkins out and down, but the national and state associations in other parts of the country where interstate travel is impeded by freak legislation on license, are joining in the fight. It is believed Mr. Lenroot has a good chance to defeat Jenkins.

**Farmers Converted**—That whatever prejudice may exist or have existed in the hearts of Wisconsin farmers against the motor car now is dispelled, for the rural residents are awakening to the possibilities of the motor car, as is proven by the sales and requests for information that have been made during the last few weeks. A. W. Shattuck, resident manager of Thomas B. Jeffery & Co., in Milwaukee, Wis., says that during March more than 1,000 well-to-do farmers in all parts of the country have written to the home office at Kenosha, Wis., about the 1908 Rambler models. The new catalog, as pretty and attractive a booklet as one would care to see, has been sent all over the United States, and is bringing results. Joseph Saris, the Ford agent at Beloit, Wis., reports the sale of three runabouts to farmers and a large number of prospects.

## NEWS FROM THE MOTOR CAR CLUBS OF THE COUNTRY

**Speedway for Buffalo**—Motorists are likely to have a fine speedway from the Buffalo city line to Tonawanda, N. Y., this summer. The board of public works of Tonawanda has agreed to improve part of the road, provided the expense of improving the rest of the road is borne by motor car owners or others interested. The suggestions are much favored in Buffalo.

**Club in Battle Creek**—A club has been organized in Battle Creek, Mich. The club starts with a charter list of forty members, and it is expected this will be increased to 100 before the meeting of the state body, which probably will be held in Grand Rapids the first week in May. The new club has the following officers: President, N. E. Hubbard; vice president, V. E. Rush; secretary, F. J. Rathbun; treasurer, Frank Evans.

**New Club in Michigan**—With the coming of spring western Michigan has taken a spurt forward so far as activity among clubs is concerned. Not only are old clubs pushing campaigns for more members, better roads and more up-to-date clubhouses, but new clubs are being organized at many points. The organization of new clubs in the western part of the state, as well as in the state as a whole, is being pushed by J. R. Jackson, of Grand Rapids, chairman of the membership committee of the state association. During last winter new clubs were formed at Kalamazoo, Battle Creek, Flint, Hart and Cadillac. Prospects at Jackson are excellent for the formation of

a club. In Jackson Superintendent Fred Holmes, of the Jackson Automobile Co., is assisting Mr. Jackson. At Saginaw Mr. Jackson has been putting in some hard work and as a result a club will be formed there within a short time. At Bay City the prospects are good.

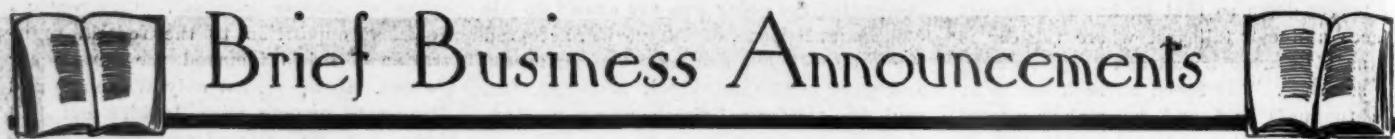
**Concessions for Motorists**—The Milwaukee Automobile Club offers a new incentive to motorists to join and is increasing its membership thereby. The club has succeeded in obtaining a reduction on the famous Whitefish toll road near Milwaukee, known as the great speedway of the northwest. Season tickets cost \$10, with a reduction of \$2.50 to members of the M. A. C. The road is being oiled and packed.

**Changes in Jersey's Big Club**—Announcement of the regular ticket nominated by the board of trustees of the New Jersey Automobile and Motor Club, shows some noteworthy changes in the official list. Angus Sinclair has decided to give up the cares of the presidential office. In his place the trustees have suggested that Paul Heller be placed. Another loss that the club will feel most keenly will come through the retirement of H. A. Bonnell from the secretaryship for a rest demanded by his recent illness. Mr. Bonnell for the same reason will be compelled to relinquish the secretarial chair of the Associated Automobile Clubs of New Jersey. A. B. Le Massena, who is the local agent for the state department of motor vehicles, has been nominated to succeed him.

W. Clive Crosby is the nominee for vice-president. Dr. James R. English has been named to succeed J. C. Coleman as treasurer. The trustees proposed are H. A. Bonnell, W. C. Shanley, Dr. F. B. Meeker, A. S. Scherer and F. A. Croslmire. Although no definite announcement has yet been made the chances favor the club's holding a 12-hour endurance run on Decoration day, open only to members of the New Jersey club.

**Road Signs for Rochester**—The work of placing road signs was discussed recently by members of the Rochester Automobile Club, of Rochester, N. Y., as was the scheme for bonding cars. This consists in paying the secretary of the club \$5, so that a member, if he wishes to visit Canada, will not be interfered with by the custom officers. Twenty-two members availed themselves of this opportunity last season, and a greater number is expected to follow suit this season.

**Cadillac Has a Club**—A new club has been organized at Cadillac, Mich., with a charter membership of thirty-one persons. It has made arrangements for the joint use of the yacht clubhouse there and has also affiliated with the state association. W. C. Westover, of the Cadillac Electric Co., has been elected president; Charles Haynes, vice president; Winter C. Massey, treasurer, and Fred A. Anderson, secretary. On the board of governors are Charles Mitchell, Darwin B. Kelly and R. W. Massey, all prominent motorists.



# Brief Business Announcements

**Pittsburg, Pa.**—The Arlington Motor Car Co. has been appointed agent in this city for the Acme.

**Newark, N. J.**—The Ennis Rubber Mfg. Co. has established a factory in this city for the manufacture of motor tires.

**Buffalo, N. Y.**—H. L. Winters, who was formerly connected with the Imperial Motor Co., is now with J. A. Cramer.

**Harrisburg, Pa.**—The Harrisburg Taxicab and Baggage Co., of this city, has filed articles of incorporation with a capital stock of \$5,000.

**Kansas City, Mo.**—The Palace Auto Co. is about to erect a new garage and salesroom on Grand avenue between Fifteenth and Sixteenth streets.

**Pittsburg, Pa.**—A. C. Lee, the local representative of the Pope-Toledo, has established headquarters with the Colonial Automobile Co. on Walnut street.

**Stamford Conn.**—The United Motor Car Sales Co. has been incorporated with a capital stock of \$55,000, by W. H. Taylor, W. E. Scofield and John L. Judd.

**Indianapolis, Ind.**—Plans have been filed for the erection of a reinforced concrete garage to be built at Capitol avenue and Vermont street for Carl G. Fisher.

**Hartford, Conn.**—A new car is to be represented in this city. A. W. Peard has secured the local agency of the Overland, and will open a garage on Mulberry street.

**Middletown, N. Y.**—Mitchell & Dayton have closed a contract with Van Vleet Brothers for the remodeling of the property at 63 East Main street into a garage.

**Boston, Mass.**—The Blaney-Campbell Co. has been incorporated with a capital stock of \$10,000 to deal in self-propelled vehicles. The incorporators are S. A. Campbell, B. F. Blaney and H. C. Castle.

**New York**—R. D. Willard has resigned from the Harrolds Motor Car Co., agent for the Pierce, and in the future will be connected with the Harry S. Houpt Co., representative of the Thomas.

**Goshen, N. Y.**—Work is progressing on the new motor car factory being erected on Greenwich street for the Coates Brothers, and it is expected that the building will be ready for occupancy by June 1.

**Springfield, Mass.**—The Woodward-Reopell Co., of Fort street, has been appointed agent for the Maxwell, which it will represent throughout Hampden county, with the exception of the city of Holyoke.

**New York**—The Park Distributing Co. has been incorporated with a capital stock of \$15,000, and will operate a hotel and garage. The incorporators are D. J. and Elizabeth C. Welch and J. H. Hughes.

**Dover, Del.**—The J. R. Richardson Auto Co. has been incorporated with a capital stock of \$50,000.

**Philadelphia, Pa.**—The Brown Auto Top Co. has abolished its branch in West Philadelphia, and in the future will concentrate its energy to look after the increased business of the Broad street repair shop.

**Los Angeles, Cal.**—Frank E. Hughes, who for the past year has been acting as the Buick sales manager for the Western Motor Car Co., is now with Louis T. Shettler, representative of the Kisselkar.

**Rochester, N. Y.**—The Rochester Timer Co. has been incorporated with a capital stock of \$20,000. It will manufacture motor cars. The incorporators are Emil Broeker, C. W. Hall and F. W. Hodgkinson.

**Los Angeles, Cal.**—A company has been incorporated for the purpose of operating a taxicab line in this city. The incorporators of the Taxicab Co., as the concern will be known, are Frank J. Spare, John A. Murphy, M. O. Yoakum, Walter J. Wren and Donald Barker. Orders have already been placed for three gasoline cars, and within the next few months the company expects to have more than twenty-five cars in operation.

## RECENT INCORPORATIONS

**New York**—Manhattan High Power Motor Car Co., capital stock \$300,000, to manufacture motor cars, etc. Incorporators, F. W. Barker and Frederick C. Bonny.

**Trenton, N. J.**—Star Motor Car Co., capital stock \$25,000. Incorporators, L. S. Harris, L. B. Harris and P. F. Gillette.

**Rockford, Ill.**—Joslyn Automobile Co., capital stock \$5,000, to engage in the manufacture of motor cars and accessories. Incorporators, J. S. Joslyn, H. B. Sivwright and K. M. Chambers.

**New York**—Gus Lind & Co., capital stock \$5,000, to conduct a garage. Incorporators, C. A. Lind, Adrian M. McCall.

**Newark, N. J.**—Automobile Parts Mfg. Co., capital stock \$10,000. Incorporators, M. O. Pursell, J. M. Baldwin.

**Hartford, Conn.**—R. W. Herfurth Co., capital stock \$125,000, to engage in the manufacture of machinery, tools, motor cars and bicycles. It will take over and use various patents and rights owned by R. W. Herfurth. Incorporators, R. W. Herfurth, George Surand and B. S. Morehouse, of New York City.

**Springfield, Ill.**—Pietsch Auto and Marine Co., capital stock \$30,000. Incorporators, L. W. Pietsch, C. J. Ward and O. E. Pietsch.

**New York**—Requa-Coles Co., of Manhattan, capital stock \$100,000, to engage in the manufacture of improved steering gear for motor cars and other devices. Incorporators, L. F. Requa, D. H. Coles.

**Binghamton, N. Y.**—H. B. Doherty Co., capital stock \$5,000, to manufacture motors, cars, engines, boats, etc.

**New York**—Havard Automobile Garage, capital stock \$10,000, to deal in and manufacture motor cars and other vehicles.

**Utica, N. Y.**—Chester C. MacQuade has been elected vice-president of the Electric Garage Co., of Court street.

**New York**—The Senate Motor Car Co. has been incorporated with a capital stock of \$100,000. It will manufacture and deal in motor cars. A. M. Meisel, F. O. Fuller and C. B. Craske are the incorporators.

**New York**—The Securo Mfg. Co. has been incorporated with a capital stock of \$25,000. It will engage in the manufacture of motor cars, motors, etc. The incorporators are R. Magee, C. B. Young and H. S. Reynolds.

**Camden, N. J.**—The Standard Automobile Co. has been incorporated with a capital stock of \$100,000, by R. H. Stamper, D. H. Goff, of Camden; J. P. Stamper, of West Philadelphia, Pa., and R. Miller, of Philadelphia.

**New York**—The Braunwarth-Wallace Co. has been incorporated with a capital stock of \$2,000, to deal in parts. The incorporators are Otto Braunwarth, Francis J. Wallace and William J. Masters, all of 1900 Broadway.

**Rutherford, N. J.**—The New Jersey Motor Co. has been incorporated with a capital stock of \$10,000 to engage in the manufacture of motor vehicles and machinery of all kinds. The incorporators of the company are H. W. Kuhl, W. E. Walter and J. P. Walter.

**Brooklyn, N. Y.**—Edward H. Stickels who has been connected with the Winton and Aerocar branches in Manhattan, has removed to this borough, and in the future will be connected with the Carlson Motor and Truck Co., of 481-487 Sterling place, as secretary and general manager.

**Columbus, O.**—A new company has been organized under the name of the Columbus Auto Supply Co., and will deal in supplies and accessories, both wholesale and retail. The headquarters of the concern are at 342 South High street. G. Schwendler, S. P. S. Cromley and S. P. Schopper, Jr., are the members of the firm.

**Chicago, Ill.**—The Webb Jay Motor Co. has been completely reorganized, and the capital stock of the concern increased to \$500,000. The company will continue to represent the Stanley steamer and the Kisselkar, and in addition has taken the agency for the Acme.

**Allentown, Pa.**—R. L. Geehr, formerly connected with the Maxwell-Briscoe company, and also with the Mack Brothers Motor Car Co., of this city, has been appointed manager of the Bethlehem Auto Co.'s plant in West Bethlehem. W. G. Stoltz is to be the superintendent. The Bethlehem runabout is to be manufactured, together with touring and delivery cars.